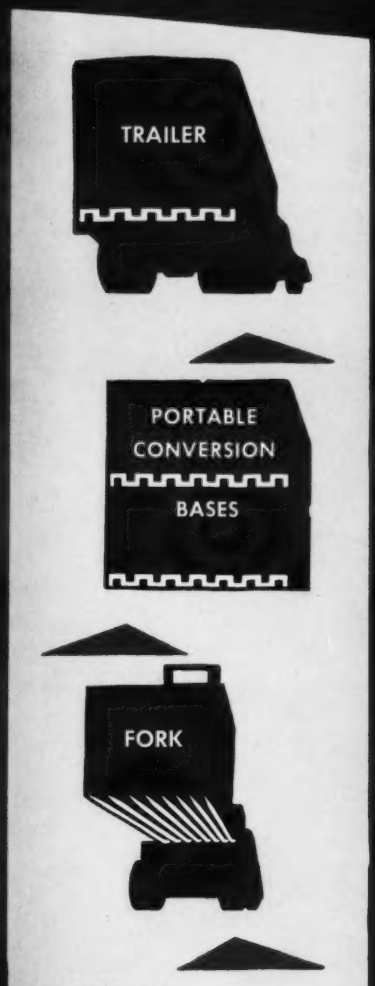
THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE

FEBRUARY 1961

FOOD PROCESSING

Automatic controller at Spreckels controls flow of highly viscous liquid without contacting it 34

SPECIAL REPORT: Will substituting soft fats and oils for solid fats improve our health and heart? 38



Are America's food processors on the threshold of a

NEW ERA OF INTEGRATED HANDLING AND SHIPPING?

- ✓ *NO PALLETS*
- ✓ *CHOPS LOADING TIME*
- ✓ *DAMAGE-FREE*

page 29

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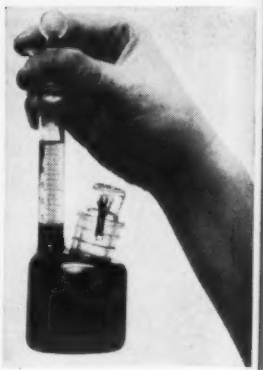
that's interesting

Instant analysis for hamburgers

Apprehensive buyers o hamburgers now have an aid for quick determinations of fa content. It's called a Fat-Alyzer, and it reveals the fa



content of a meat sample with in a half of one percent i 15 min at a cost just unde 50 cents per test.

Purpose of this technique i to save the time usually in volved in having meat sample analyzed by the closest inde pendent laboratory. It's in tended to make quality con trol easier for restaurant op erators.

Food Technology, Inc., 59 Northwest Highway, Chicag 31, Ill., makes the Fat-Alyze

Carbonated beverages prove heady wine for can makers

That breakthrough that ca manufacturers scored in th carbonated beverages marke last year amounted up to 6 million cans made for so drinks in the January throug August period alone — 5 per cent more than the previ ous year — according to th Bureau of Census. Sales o cans for carbonated drinks i August alone was 97 per cen higher than August, 1959.

Projected total for 1960, ac cording to Continental Ca Co., is 800 million cans fo carbonated drinks. Some 4 brands produced in 50 loca tions around the country no are packaged in cans.

that's interesting

More desert than dessert

What became of the "sand" formerly found in ice cream? Actually crystallized milk sugar, it prompted many customer complaints prior to 1940, then suddenly and mysteriously disappeared.

Smooth solution to the 20-yr-old mystery is offered by University of California dairy scientist Thomas A. Nickerson. When creameries changed from gelatin to vegetable gum stabilizers, the latter, used in very small quantities to keep the ice cream smooth unexpectedly inhibited production of the crystal nuclei around which the "sand" formed; thus, it was automatically eliminated before lab studies really could get underway.

For more information on product at right, circle 7477 see information request blank opposite last page.

GO MODERN—profit with the wholesome milk product that boosts appetite appeal...builds brand loyalty! Valley Fresh Sweet Dairy Whey, an excitingly different milk product, contributes bonus flavor, texture, shelf life and nutrition to almost every known food item...at lower cost. This 100% pure dairy ingredient provides a higher content of Lactose than any other fraction of milk. It is also rich in milk's preferred protein, Lactalbumin, and other important milk solids. Valley Fresh Sweet Dairy Whey can help you improve present products...play a vital part in new product development. And you can count on skilled and extensive technical assistance. For complete details and samples, get in touch with Western, world-wide supplier of quality milk products. Write or phone today.

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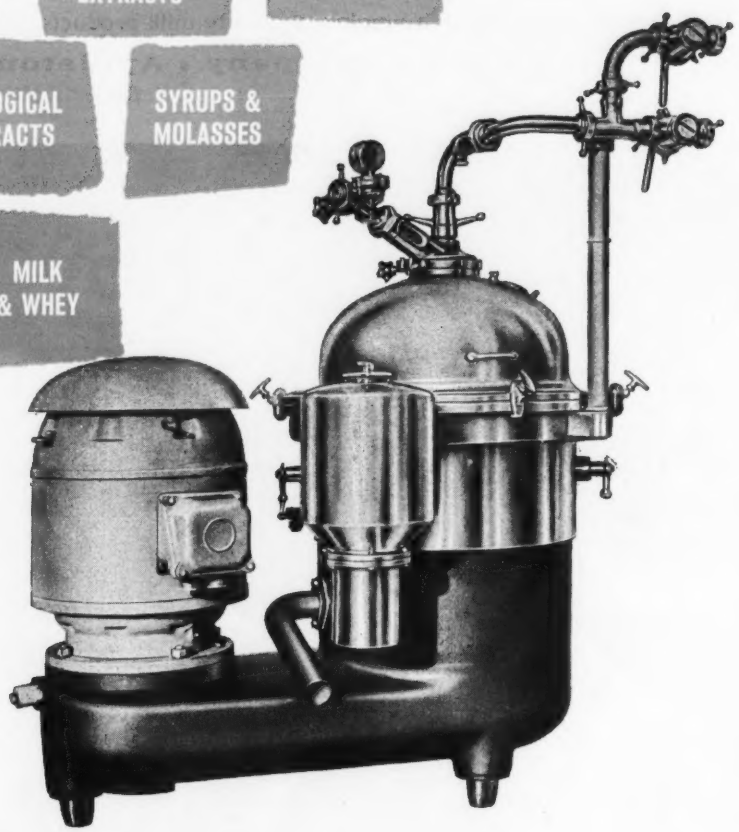

Why are so many food processors specifying "Big Sam"?

Because "Big Sam" gives them *continuous* high capacity clarification . . . while protecting delicate flavors, true colors, nutritional values. "Big Sam's" sanitary design—stainless steel with smooth polished surfaces throughout hood, sludge discharge and all product contact areas—prevents contamination and "entrapment" of food particles. By replacing outmoded batch methods with fully automatic around-the-clock operation, they have cut costs, increased profits. Chances are "Big Sam" will do the same for you . . . ask for information on the WESTFALIA model SAMN-15037 Automatic De-Sludger.

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over the editor's shoulder

Covering a 'revolution'

This month's cover article — covering the revolutionary Unit Load System long a gleam in Inventor Addison Brown's eye — began to take definite shape when Associate Editor Karl Robe covered a recent demonstration of the new system at Encinal Terminals, Alameda, Calif.

Initial coverage then was expanded through interviews here in Chicago with Mr. Brown — who also heads the sprawling Calumet Industrial District on the city's southeast side.

Previous rail shipping methods, he points out — some more effective than others — all have been based on the same principle — building or positioning some kind of "furniture" inside a freight car that remains basically a nineteenth century development.

Unit Load, on the other hand, is the first system designed specifically for regularly scheduled, large-scale cross-country freight shipments in the world of the 1960's.

In a future issue, FOOD PROCESSING will report the new system's progress in winning the widespread acceptance of the food industry.

Another major related article — beginning on page 104 — gives details on how and why a major West Coast processor is pioneering unitized shipping by water.

ASSOCIATE EDITOR

THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE

FEBRUARY 1961
VOL. 22 NO. 2

FOOD PROCESSING

CIRCULATION OVER 39,000

Highlights

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New system of palletless handling and shipping offers revolutionary potential for savings and efficiency in every handling operation — Karl Robe and Norb Leinen, Associate Editors

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G. W. Miles, Jr., Superintendent; and A. G. Frost and T. W. Baker, Engineers, Spreckels Sugar Co.

38 Should diets shift from solid fats to liquid oils?
How sound is the dietary trend which is more and more being urged onto the entire population? — Howard P. Milleville, Editor

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Dr. Charles Glen King, Executive Director of the Nutrition Foundation, Inc.

54 Improves texture, extends shelf life of many bakery products
Pregelatinized corn flour offers use as excellent binder and dough conditioner in coffee cakes, sweet rolls and cookies — W. L. Vollink, Manager, Corn Laboratories, General Foods Corporation

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70 Lightweight, lined steel pails boost small-quantity shipments

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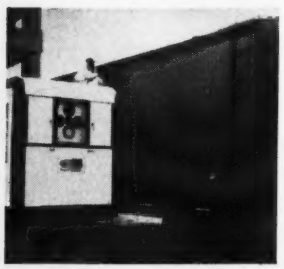

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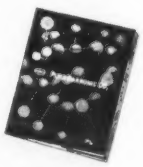

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FOOD PROCESSING

(Food Processing Preview)

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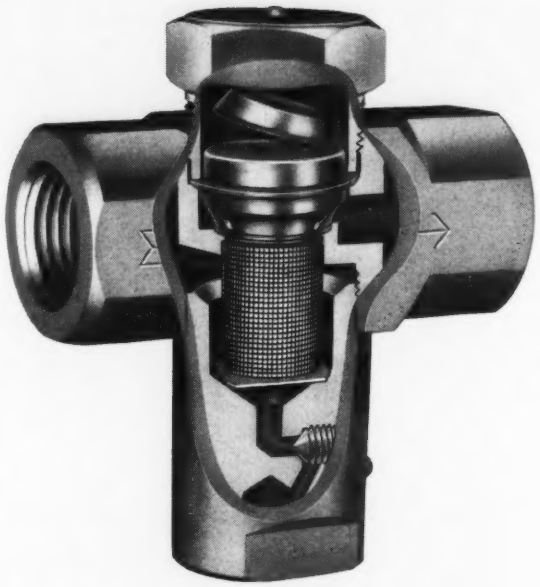

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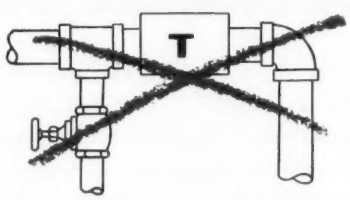

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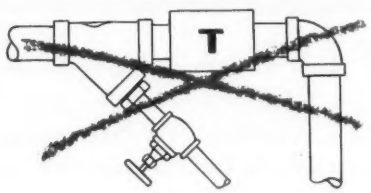

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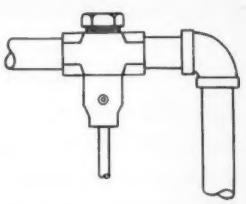

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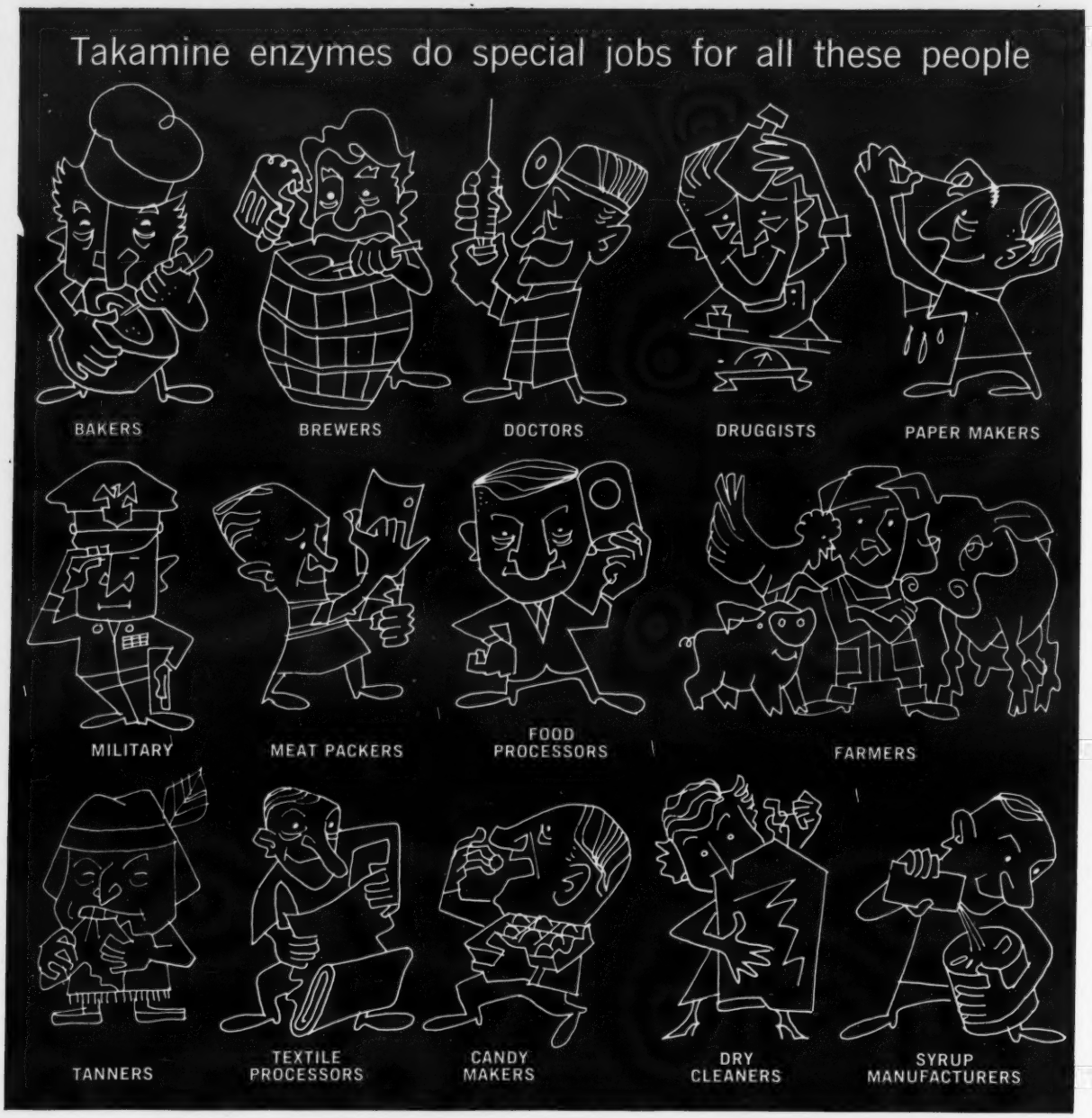

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conventions and exhibits

Feb. 28-*Mar.* 1. Ninth annual National Dairy Engineering Conference, Michigan State University, East Lansing. Dept. of Agricultural Engineering, Michigan State University, in cooperation with MSU Dept. of Food Science and National Assn. of Dairy Equipment Manufacturers.

Mar. 5-8. National Assn. of Frozen Food Packers, 20th annual convention & exposition, Statler-Hilton Hotel, Dallas.

Mar. 20-23. Fifteenth National Conference on Handling Perishable Commodities, Purdue University, Lafayette, Ind.

Mar. 21-30. American Chemical Society, 139th national meeting (Agr. & Food Chemistry Div., Mar. 22-25), Kiel Auditorium, St. Louis.

Mar. 26-30. National Assn. of Refrigerated Warehouses, The Refrigeration Research Foundation, annual meeting, San Francisco.

Apr. 4-6. Research & Development Associates, 15th annual meeting, Hotel John Marshall, Richmond, Va.; also Fort Lee, Va., and Norfolk Naval Base.

Apr. 9-13. American Assn. of Cereal Chemists, 46th annual meeting, Baker Hotel, Dallas.

Apr. 10-13. American Management Assn., 30th AMA National Packaging Exposition & Conference, Chicago Exposition Center, Chicago.

Apr. 11-12. Food Engineering Conference, Food Science Dept., Michigan State University, East Lansing.

Apr. 13-14. Civil Defense Training Course for the food industry, sponsored by American Assn. of Cereal Chemists, FDA and Dallas City-County Civil Defense Office, Dallas.

Apr. 20-21. National Fruit & Syrup Manufacturers Assn., Inc., 44th annual convention, Savoy-Hilton Hotel, N.Y.

association news

Lt. Col. Harlan J. Wills, USA-ret., has been appointed secretary of the **Research and Development Associates,** Food and Container Institute, Inc. He succeeds **Col. Rohland A. Isker,** USA-ret., who has been secretary since 1948.

Col. H. J. Wills

Dr. K. F. Meyer

Dr. Karl Friedrich Meyer, Director Emeritus of the George William Hooper Foundation of the University of California, San Francisco, was awarded the Eighth Annual **Forty-Niner Service Award** during the Canners Convention in January. Dr. Meyer received the Award in recognition of his basic research in the science of food preservation and his contributions to the early establishment of processing times and temperatures for canned foods.

Adelia M. Beeuwkes, associate professor of public health nutrition at The University of Michigan School of Public Health, has been named president-elect of the **American Dietetic Assn.** She will take office in October 1961.

For a long-term study of what causes anemia among the American people, **Dr. Richard W. Vilter** of the University of Cincinnati has been presented with the annual American Medical Assn.-Nutrition Foundation Award. Named in honor of the memory of pioneer nutritionist Joseph Goldberger, the award carries a $1000 honorarium.

W. Gardner Barker, president of Thomas J. Lipton, Inc., has been elected president of the **Tea Association of the U.S.A., Inc.**

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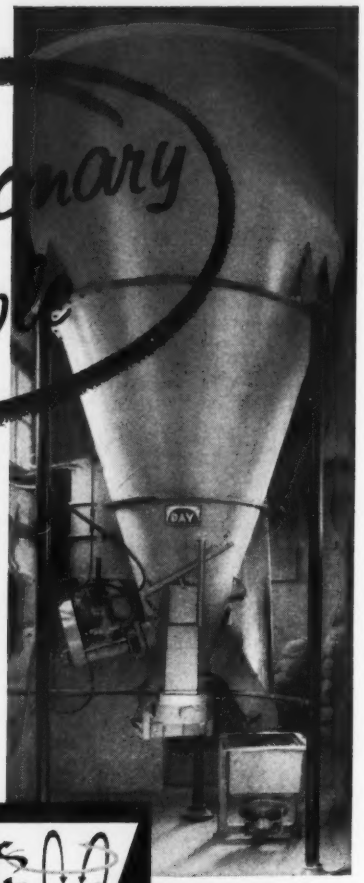

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HIGHEST Mixing Accuracy in SHORTEST Mixing Time

Compare these Unequalled Features:

- **HIGHEST MIXING ACCURACY** — Consistently superior performance in plants here and abroad prove the Day Nauta Mixer produces a greater degree of mixing accuracy in less time than any other known type of equipment.
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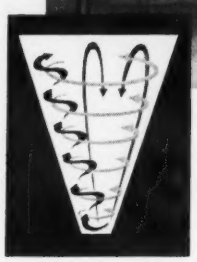
- **EASY ADDITION OF LIQUIDS** — Day "Microjet" device permits easy additions of molasses, fats, oils, vitamins, etc., to large amounts of batch. Insures complete homogeneity of mix and no lump formation.
- **STARTS UNDER FULL LOAD** — Mixing starts under full load as unique three-way mixing action immediately loosens the batch; prevents stalling.
- **LOW POWER CONSUMPTION**—A 5 hp. motor can mix a 4000 lb. load.
- **SANITARY DESIGN** — Continuous cone shape of container eliminates corners and crevices. The Day Nauta is quick and easy to clean.



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Three distinctive mixing actions (see diagram) give a quick, accurate mix. Batch is mixed and spiraled upward by mixing screw. At same time, screw orbits around inside wall of conical container, moving batch in a large, second spiral. Third action is a gravity action as material flows downward in central area of cone. All three actions converge at the bottom of the cone for a fast, intensive mix, with heat from friction practically eliminated.

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PRODUCTS AND PACKAGES

First frozen 'chocs' . . .

. . . offered commercially — a major step for the confection industry — are result of a new manufacturing process and aluminum foil packaging.

Introduced by Wallace and Co., 460 Smith St., Brooklyn, N.Y., the Frozen Wafer Thin Mints and Fruits may be enjoyed in their frozen state or thawed and served at room temperature. Foil-lamination overwrap provides moisture barrier needed to preserve product's flavor.

Supplier: Overwrap — from foil supplied by Aluminum Co. of America — by Milprint, Inc., 4200 N. Holton St., Milwaukee 1, Wis.

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Beefed-up canned-meat line . . .

. . . designed to enable operators of volume-feeding services to combine menu variety with convenience and economy, now is available nationally from John Morrell & Co.

The diversified, 11-item institutional line includes six-and-one-half lb tins of beef and gravy, pork and gravy, beef with barbecue sauce, pork with barbecue sauce, corned beef hash, chili con carne with beans, ham shanks and ham chunks.

Two-lb cans of boned chicken and boned turkey (shown) and six-and-three-quarter lb tins of Ox Tongue — a specialty item prepared according to an old English recipe — complete the line.

Bagged franks . . .

. . . marketed by Hildebrandt Provision Co., Cleveland, meet their public in a custom-printed duplex bag of a type familiar to cookie lovers. A combination of 46-lb bond on the outside and cello on inside, the two-lb bag is easy to pick up, simple to reclose and its design makes a special appeal to outdoor cooking.

Supplier: Bag designed and flexographically printed in three colors by Milprint, Inc., 4200 N. Holton St., Milwaukee 1, Wis.

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The '900-calorie boom' . . .

. . . set off originally by Metrecal, keeps building momentum, with two new nationally distributed products available for diet watchers. Beatrice Foods' "Weight Control-900" — a high-protein, fully balanced dietary food — comes in quarts (a day's supply) in chocolate and vanilla flavors at 89 cents retail.

Horlicks "900 Calorie Food Concentrate" also offers chocolate or vanilla flavors, comes in an amber-glass jar with large opening and straight sides — permitting product to be spooned out without difficulty.

Supplier: Glass jar by Owens-Illinois, Glass Container Division, Toledo 1, Ohio.

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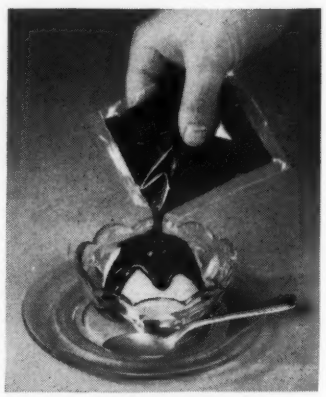
See-through vacuum pouch . . .

. . . for Morrell Pride Smokees seals in the smoked flavor of the skinless sausage links, preserves the product's attractive color. Printed closing tab on 10-oz package carries product name and Morrell "Pride Line" emblem.



Tops for hot . . . or cold . . .

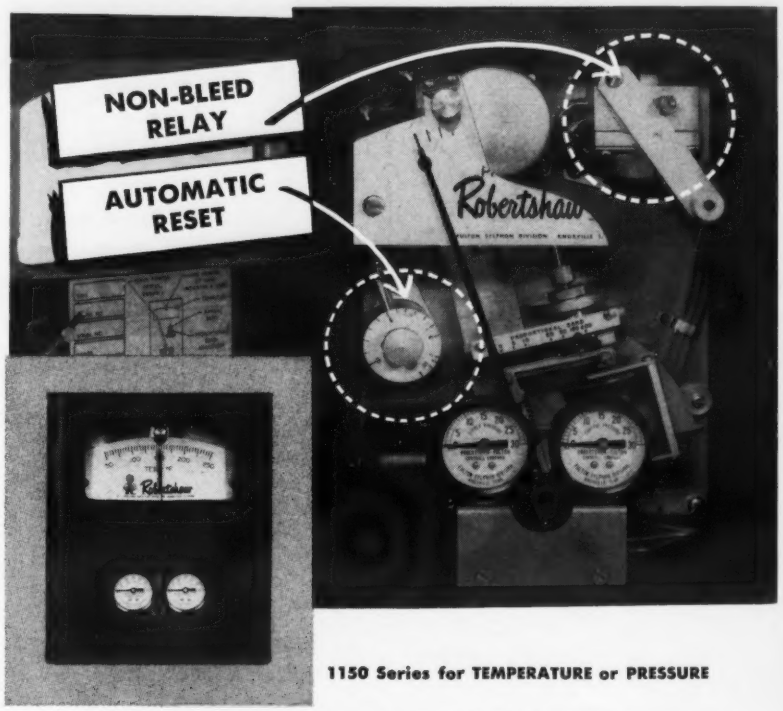
. . . is this Mylar-poly "heat-in" pouch designed for portion servings of dessert toppings. Latter may be dispensed cold, or hot — after immersing pouch in hot water for short time. Pouches can be merchandised like potato chips from shelf racks or "shingled" on display boards.

One-thousand six-by-six-in. pouches (six-oz size) would sell for $21.84, based on three-color, one-side flexographic printing — in quantities of 100,000. As roll stock, same quantity would cost only $18.86, and can be formed and filled on Bartelt and other machines.

Supplier: Continental Can Co., Flexible Packaging Div., 100 E. 42nd St., New York 17, N.Y.

7487 on Reader Service Slip.

Indicating Pneumatic Controller Is Fully Field-Serviceable!



1150 Series for TEMPERATURE or PRESSURE

In food processing operations that demand economy, precision and serviceability, this Robertshaw Controller, Transmitter and Receiver/Controller has found instant acceptance.

Its simplified design, using a maximum of only five pivots, improves accuracy, increases sturdiness.

Other reliable Robertshaw features include:

- Proportional action—0.5% to 200%
- Fully compensated thermal system
- Open construction; easily serviced or recalibrated
- Manual adjustment; no tools needed
- Temperature ranges to 1000° F. in 200° bands
- Pressure ranges to 500 psi.

Complete data and specs now available . . . write today for Bulletin CG-757.

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Tighten Down on FOAM

*with Dow Corning Silicone Defoamers**

There's a *right* tool for every job. In foam control it's Dow Corning silicone antifoamers or defoamers . . . job-proved thousands of times over as the most efficient, most economical, and most versatile foam suppressors available.

*At prescribed levels, are sanctioned by FDA

FREE SAMPLE and new manual on foam control

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

Dept. 3914a

Please rush a FREE SAMPLE of a Dow Corning silicone defoamer for my product or process, which is (indicate if food, aqueous, oil or other): _____

NAME _____

POSITION _____

COMPANY _____

ADDRESS _____

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food regulations

FDA position on fats, heart disease unchanged by Heart Assn. dictum

Labeling, advertising of various margarines being scrutinized for accuracy . . . Some seizures made on grounds labeling was misleading

FDA IS TAKING a careful look at the vegetable oil advertisements rushed into print in newspapers in 50 to 60 cities following the American Heart Association statement about fat in diet in December. The statement related animal fats in the diet to heart disease and suggested substituting unsaturated vegetable fats for many meat and dairy products in human diets. For a commentary on this statement and its interpretation, see page 38.

FDA lawyers and scientists have each been given copies of the ads and the AHA statement. The initial task is to determine whether the ads correctly reflect the AHA's position on cholesterol and the attitude of leading heart and diet specialists.

FDA could decide that the ads constituted proper information to potential consumers and that there was no undue attempt to distort medical opinion in favor of a product. However, belief at FDA is that officials seek to show that the ads may not have been a proper reflection of the AHA's position and that the statement might have been misused.

FDA is empowered to act on these advertisements — favorably, unfavorably, or noncommittally — even though the product labels may not refer to cholesterol. (The agency already had been acting against certain cholesterol and heart attack statements on product labels.)

This is an area normally left to the Federal Trade Commission, but FDA has Congressional backing to investigate all types of promotion for dietary foods. Observers believe FDA's rights in advertising control would be upheld in the courts, but there is a possible move that would avoid the chance of an unfavorable decision. A product can be examined against the advertising claims, whether or not on the label, and if it does not perform the function claimed in the advertising, it could be held mislabeled.

Immediately after the heart association report was released, FDA's technical chiefs met to study the statement and to review FDA's own position. The decision of that meeting was that the agency's year-old position on cholesterol would be unchanged. That position was, and still is:

"Addition of unsaturated fats and oils to the otherwise unchanged ordinary diet will not reduce blood cholesterol and prevent heart attacks and strokes. Representations to the public that salad oils, shortenings, oleomargarine, and similar products have value for these purposes are false and misleading and will cause such products to be misbranded.

"Reference to the term 'cholesterol' in the labeling of common foods now being offered to the public may have the effect of a claim of special value for preventing or treating these diseases.

"Scientific investigations of fatty substances as a possible factor in lowering blood cholesterol and preventing heart disease should be continued . . . the public has been misled into relying prematurely on data which are still experimental, incomplete, and contradictory, and it is FDA's duty to head off false and

New Techniques In Equipment Cleaning:

FILLERS
BLANCHERS
COOKERS
AUTOCLAVES
KETTLES
VATS-TANKS
EVAPORATORS
PASTEURIZERS

KLENZADE

KLENZADE SANITATION PROGRAMS

HC-8 CHLORINATED
Alkaline Detergent
Designed for heavy duty soil removal on all food processing equipment. Converts heat-hardened solids into more soluble form through chemical reaction. Chlorinated for improved detergency. Exceptionally effective on animal or vegetable fats.

FLASH-KLENZ
Organic Acid Detergent
Neutralizes and dissolves baked-on deposits. Excellent for de-liming and penetrating mineral-bonded soils. Keeps equipment film-free and restores original lustre of surfaces. Non-corrosive. Extra efficient in problem water areas. For alternate use with Flash-Kleen.

KLENZADE XY-12
Sodium Hypochlorite Sanitizer
Powerful bactericidal action, yet safe for all food handling equipment. Backed by over 25 years of popularity in food operations. Clear liquid easy to mix in use dilution. Leaves no sediment or residue. Stable; excellent keeping quality; high strength.

Ask About Our Sanitation Surveys
KLENZADE PRODUCTS, INC.
Systematized Sanitation All Over the Nation
Dept. 31B BELOIT, WISCONSIN

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Association News

Dr. H. E. Robinson,

Director of Laboratories, Swift and Company, Chicago, Ill., was presented with a Fellow award by the American Society of Animal Production. Dr. Robinson received the award in the field of industry "In recognition of Distinguished Service over a period of 25 years or more . . ." The award goes only to those devoted men working in the field of animal science who earn them by long years of productive service in their own particular fields.

Achievement Awards

will again be presented by the National Institute of Packaging, Handling and Logistic Engineers at their annual meeting in May. The two achievement awards are given to individuals who have made outstanding contributions in the development, promotion and application of improved packaging and improved materials handling and logistics for the government. All nominations for the awards must be received not later than March 1 and be made on the Official Nomination Form. Forms can be secured from NIPHLE, 402 Washington Bldg., Washington 5, D. C.

Assn. of Official Agricultural Chemists

is now accepting nominations for the fifth AOAC Harvey W. Wiley Award for Achievement in Analytical Methods. The award of $500 will be given to the scientist or groups of scientists who have made outstanding contributions to the development of analytical methods for foods, drugs, cosmetics, feeds, fertilizers and pesticides or for use in general analytical chemistry. Nominations must be submitted by April 1 to William Horwitz, Secretary of the Association, Box 540, Benjamin Franklin Station, Washington 4, D. C.

For more information on product at right, circle 7491 see information request blank opposite last page.

Our Product Development Laboratory — a vital area in research, source of quality standards and directions for use of Griffith Seasonings, Cures, and other products we manufacture.

For every taste preference in every variety of spiced food — there's a Griffith flavor formula! Ground, dry soluble, or liquid—in unit packages.

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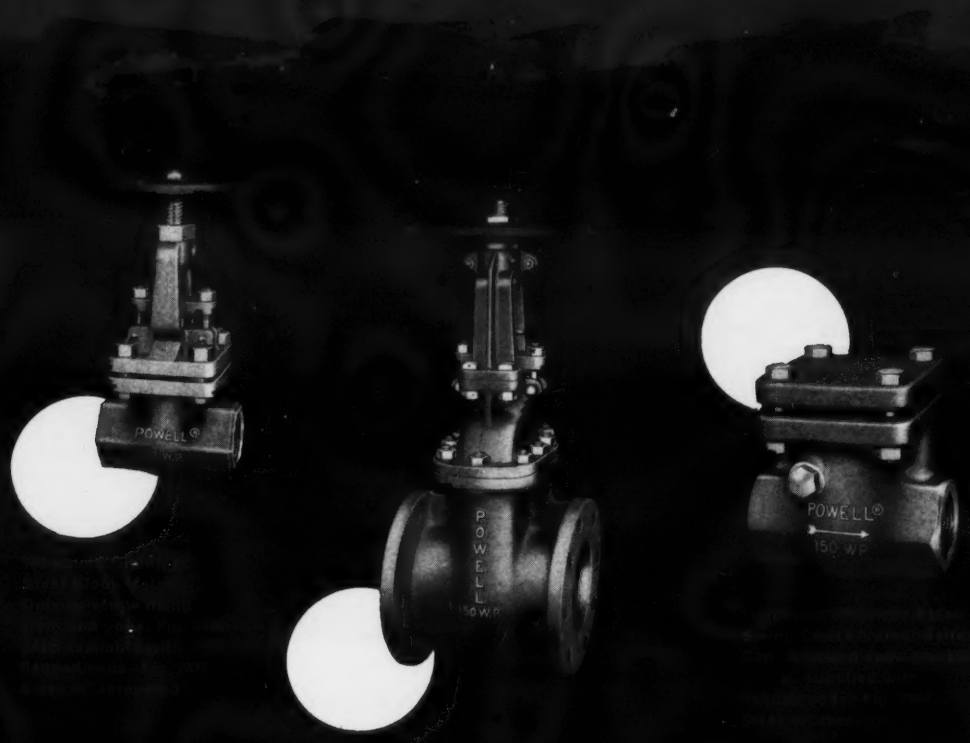
GRIFFITH - SEASONING SPECIALISTS

CHICAGO 9, 1415 W. 37th St. • UNION, N. J., 855 Rahway Av. • LOS ANGELES 58, 4900 Gifford Av.

POWELL PERFORMANCE!



115th year of manufacturing industrial valves for the free world

POWELL VALVES

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misleading promotions based on such data."

An FDA official admits that at least one of the uses of the heart association report in advertising (Wesson Oil) "is contrary to the Food & Drug Administration's present feelings."

Observers here await further FDA moves into advertising regulation. FDA will not comment and industry officials are reluctant to explain their "intuition" about the matter. However, recent margarine seizures on the basis of nutritional claims lead observers to feel that margarine advertising next may be in for scrutiny.

Such investigation could follow the line probably being taken on the cholesterol advertising: That the product does not live up to its advertised claims and is therefore mislabeled even though nutritional claims may not appear on the label.

The seizures that hint in this direction were 15,174 pounds of margarine (Kraft Foods Division of National Dairy Products) valued at $3864 in Washington, D. C., and 1,037 pounds of margarine (Lever Bros.) valued at $375 in Nashville, Tenn.

FDA claimed that the margarine seized in Washington was misbranded in statements about "extra nourishment" and "greater amounts of vitamins" than other spreads. The agency claims that the word "margarine" was not conspicuously displayed so that it could be easily read.

FDA claims that the label on the margarine seized in Nashville was misleading in claiming that the margarine was significantly higher in nutrition than other margarines and similar spreads. The agency charges that reference to "higher priced spreads" falsely suggests that the margarine contains significantly greater nutrient content than butter. Statements implying that the margarine was efficient for special dietary uses and for growing children were held false and misleading.

A further FDA charge in the case of the Nashville sei-

zure is regarded as confirmation of the suspected trend toward closer advertising scrutiny: FDA contends that the consumer is directed toward a conclusion that the margarine has significantly higher nutritive value on the basis of "the setting created by advertising for the product."

FDA cushions report on frozen foods in reprint

FDA is acting to reduce any adverse public reaction that may be caused by its report on sanitary practices in frozen foods plants. Already, preliminary stories on the report have resulted in damaging newspaper headlines. FDA officials say they are as surprised and embarrassed as the industry is shocked and angered.

The agency has withdrawn the report from the Government Printing Office, which had scheduled it for March release, and is multilithing it at FDA headquarters. This will get the report, and a clarifying preface, out to the public sooner.

The preface points out that the report reflects conditions that existed as much as two years ago, that many unsanitary practices have been voluntarily remedied by the industry, that only some foods were examined and that only a small portion of plants were inspected.

Internal policing unit may curb industry's contacts with FDA

Food processors may soon have difficulty discussing their problems informally with FDA officials. One regulation of the new internal policing unit set up by HEW Secretary Arthur Flemming just before he turned the organization over to Abraham Ribicoff is "that a reasonable control be put upon the access of industry representatives to FDA personnel considering actions affecting the industry."

A special investigating group appointed by Flemming discovered evidence that drug firms had too easy access to FDA personnel considering new drug applications. The investigators did not make similar charges against food processors, but indicated that access has been too easy and too great throughout the agency.

"This access may well take the form initially of an offer to help, by providing information for example. In some cases the responsible public officer may be visited by a group of company officers and supporters to explain the merit of the company's position. Alert and continuing interest is made clear, urgency is frequently added, and sometimes an atmosphere of pressure or coercion is felt."

Other recommendations:

1. Encourage a closer relationship between FDA and state and local authorities.

2. Reorganize communications channels to assure that FDA scientists' views will be considered before decisions are made by the Commissioner.

These recommendations, which now have the force of departmental regulations, will be enforced by a special FDA unit to police on-the-job activities in the agency.

Although the unit was organized as a "final act" by an outgoing administration, it will not be killed by Ribicoff. On the contrary, FDA expects it to be strengthened. This expectation is based on the new President's general views, and on some specific recommendations for the regulatory agencies made by James Landis, Kennedy's special supervisor of the agencies.

Record FDA budget to finance expanded inspection staff, labs

FDA's fiscal 1961 budget is the largest in history. The new administration probably will ask Congress for small additions in some areas before the year ends June 30. Supplemental funds most likely to be granted will be for medical evaluation and field inspection.

Congress already has appropriated $18,848,000. Of this, $1,200,000 was a supplemental for enforcement of the Color Additive Amendments and the Hazardous Substances Labeling Act. Another $800,000 of the total will cover pay raises under the 1960 Federal Employee Salary Increase Act.

The budget, before modification by the new administration, provides a total staff of 2,199. Of these, 823 will work in Washington and 1,376 will man the 18 districts. There will be 146 more inspectors than last year, bringing the total to 625. The new budget calls for 604 scientists, 156 more than last year.

As the budget stands, it permits expansion to adopt most of the Citizens Advisory Committee's recommendations. It provides special staffing in the radiological hazards area. Ninety positions are being filled in this field. It provides especially for 199 positions to carry out color additives and hazardous substances labeling legislation.

The new budget permits refurbishment and enlargement of Los Angeles and Buffalo laboratory and office facilities and calls for initiation of similar projects in Boston, Cincinnati, Kansas City, and Minneapolis.

The new budget already increases FDA establishment inspection from 26,311 in 1960 to 31,500. This is approximately one inspection every four years, more for some establishments.

This budget does not include $15,105,000 appropriated for the General Services Administration to construct a new building to house the Washington operations, now spread through buildings in all parts of the capital.

USDA revises curbs on moisture content in smoked ham, cured pork

USDA has revised its regulations on smoked hams and some other cured pork products to permit production and

IF YOU MAKE THESE PRODUCTS:

dry mixes, cookies, crackers, cakes, pies, soups, sauces, gravies, frozen pies, ice cream, sherbet, confections, macaroni & cheese—or most any product calling for non-fat dairy solids . . .

KRAFEN

(Kraft's spray-dried sweet whey)

WILL GIVE YOU THESE BENEFITS

Fine, True Flavor—Krafen's high milk sugar content and absence of casein works to bring out the natural flavor of all processed foods, frozen foods, ice cream, sherbets and baked goods—the flavor other dairy ingredients tend to mask!

For example, frozen food processors using Krafen no longer need "over-season" to maintain the flavor level.

Improved Eating Quality and Appearance—Krafen's combination of milk sugar and whey proteins gives added shortness and tenderness to all finished baked goods, whether ready-baked or from a mix . . . imparts finer texture and promotes a uniform, rich color and bloom.

Extended Shelf Life—Krafen's high moisture absorption and retention properties extend the shelf life of baked goods by a profitable margin.

Savings of up to 5¢ a Pound—Replace your present dairy ingredient with Krafen. Save up to 5¢ a pound on dairy solids costs and be assured of superior performance. Krafen—a high-quality, low-bacteria, low-acid dairy ingredient—is produced by Kraft in one of the world's largest, most sanitary whey plants.

Ask your Kraft man or write to Kraft for a free sample of Krafen and complete data on its use in your products. Then test Krafen in your plant and look forward to great results!

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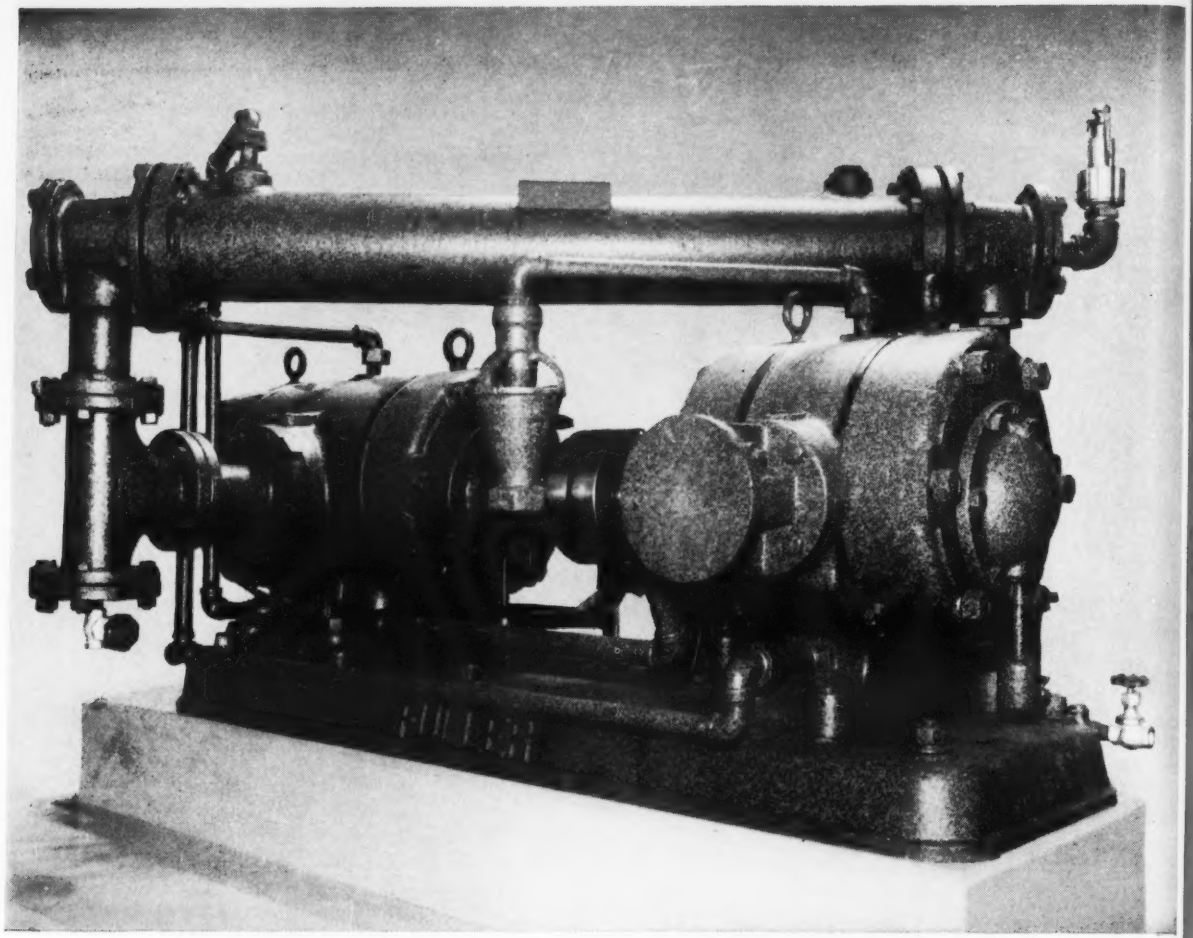

Fuller Compressors With Overhead Intercoolers Offer A New Dimension In Compactness

Fuller Rotary Two-Stage Compressors equipped with Overhead Intercoolers fill the bill where space may be a problem. These compressors produce from 30 to 3300 cfm, pressures to 125 lb. gage and can be readily installed.

These compact Rotary Compressors are vibration-free, thereby eliminating the need for involved and expensive foundations or structural modifications.

The Fuller rotary principle permits complete freedom of reciprocating parts—valves, crankshafts, pistons—cutting the need for frequent servicing and parts replacement. Minor maintenance is all the care indicated for years of serviceability.

For full details on the maintenance-free economy and high performance of Fuller rotaries, write today for comprehensive, illustrated Bulletin C-5A. 2626 C359

"See Chemical Engineering Catalog for details and specifications".

FULLER COMPANY GENERAL AMERICAN TRADE MARK

FULLER COMPANY
176 Bridge St., Catasauqua, Pa.
Subsidiary of General American Transportation Corporation
Offices in Principal Cities Throughout the World

Fuller
....pioneers in harnessing AIR

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marketing of some products with not more than 10% added moisture. The revision affects smoked hams, pork shoulders, pork shoulder picnics, and pork shoulder butts.

Regulations are still in force to prohibit any added moisture in smoked tongues, and smoked or unsmoked cured meats labeled as ready-to-eat products. Also unchanged is the limitation of 8% added moisture in canned hams and other canned pork products.

FDA STANDARDS

Evaporated milk: Standard of identity change has been proposed that would permit the presence of carrageenin (extract of Irish moss) not to exceed 0.015 per cent by weight of finished product.

This proposal, offered by Foremost Dairies, Inc., is being opposed by some of Foremost's competitors who want an option to use other gums for stabilizers other than Irish moss extract. They want the Foremost proposal delayed long enough for them to complete development on these other gums and get clearance on them.

Borden, Carnation, Marine Colloids, Pet Milk and A&P's White House division all want the definition of "carrageenin" in the standard to be expanded to cover more than Irish moss extract. White House, Borden and Marine Colloids also have objected to the 0.015 per cent by weight maximum.

In addition, Borden and White House have strongly protested the proposal because Foremost owns a patent (Wilcox 2,845,350, issued July 29, 1958) on the aseptic fill process that uses Chondrus Crispus (Irish moss). Borden said that if FDA wants consumers to be benefited economically from new types of evaporated milk, "it certainly should be done on a basis which does

For more information on preceding spread, circle 7493 . . . see information request blank opposite last page.

GLUCONO-DELTA-LACTONE LEAVENS LIKE CLOCKWORK

SAVES ITSELF TILL BAKING TIME... THEN SPRINGS INTO ACTION!

● Laboratory and field tests continue to confirm the excellence of Pfizer's Glucono-Delta-Lactone as a chemical leavening agent in baked goods.

Of specific interest to mix manufacturers is G-D-L's observed low level of activity in storage and at the mixing stage. There is very little loss of leavening power throughout normal shelf life and carbon dioxide release during mixing is slight. The gas is developed mainly at the elevated temperatures of the baking cycle—a distinct advantage where a chemical leavening action can be used and where long shelf life is a factor!

Products leavened with G-D-L have a fine, even texture, show excellent volume, and are free of unpleasant aftertaste.

Investigate G-D-L for use in such products as MUFFINS, DANISH PASTRY, RAISIN AND OTHER BREADS, ROLLS, BREAD STICKS AND PIZZA PIES.

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SCIENCE FOR THE WORLD'S WELL-BEING • QUALITY INGREDIENTS FOR THE FOOD INDUSTRY FOR OVER A CENTURY

Please send me:
☐ G-D-L Technical Data
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SPACE AGE FLAVORS...

...with that Country Kitchen Taste!

This is the day of jet-flight and dehydrated potatoes; atomic energy and frozen bread; super-sonic speed and "quicker-than-instant" mixes for everything from soups to desserts. This is the threshold of the space age and the era of convenience foods. Flavors for these modern foods must be as dynamic as the technology of their formulation . . . as carefully designed as the science that developed them. Yet, these space-age foods must still retain that home cooked taste. Only a company that keeps thoroughly abreast of the newest developments in food can give you this kind of "built for the product" flavor. Fries & Fries provides you with space-age flavors with that country kitchen taste! Let our laboratories show you what dynamic flavor research means.

MANUFACTURING CHEMISTS
FRIES & FRIES
INC.
CINCINNATI
U.S.A.

Cincinnati 110 E. 70th St. New York 418 E. 91st St.

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not enhance the patent monopoly of one individual processor."

Bakery products: Definitions and standards of identity changes are proposed to permit safe use of calcium stearyl-2-lactylate in yeast-raised bakery products, in prepared mixes for such products, and in liquid and frozen egg whites and in egg white solids as an emulsifier.

Yellow 6, Red 4 now appear okay

FDA now asserts that no certified color is at present in danger of being delisted. And there's no indication any color now certified is a carcinogen.

Question about this developed from a story in the January FOOD PROCESSING. It reported that, as of early December, tests on dogs indicated Yellow 6 and Red 4 might be carcinogenic.

FDA says these continuing tests now indicate no danger of carcinogenicity in these colors.

New regulations under Additives Amendment

Castor oil: As a component of protective coatings for vitamin and mineral tablets used for food, provided the additive meets the specifications prescribed in United States Pharmacopeia XVI. (Mead Johnson and Co., Evansville, Ind.)

Polysorbate 80 (Polyxyethylene (20) sorbitan monooleate): In frozen desserts as an emulsifier, and as a component of yeast defoamer. A mixture of polyoxyethylene ethers of mixed partial oleic acid esters of sorbitol anhydrides and related compounds, this additive may be safely used in or on food in accordance with the following prescribed conditions:

In ice cream, frozen custard, ice milk and fruit sherbet as an emulsifier when used alone or in combination with polyoxyethylene (20) sorbitan tristearate, whereby the maximum amount of the additives,

Use the Guaranteed Original M.S.G.

AJI-NO-MOTO®

Prevent "flavor loss". Use AJI-NO-MOTO® the original pure Mono-Sodium Glutamate, to bring out the *full, natural flavor* of all your foods. Always reliable for uniform quality. That's why today's leading food packagers and processors specify AJI-NO-MOTO® *You* should, too! Write for details:

AJINOMOTO COMPANY OF NEW YORK, INC.
30 Broad Street, New York 4, N. Y.

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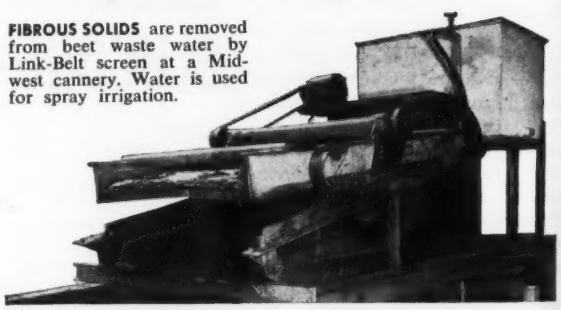
LINK-BELT liquid vibrating screens

FIBROUS SOLIDS are removed from beet waste water by Link-Belt screen at a Midwest cannery. Water is used for spray irrigation.



Separate solids from waste water at low cost

More and more food processors are turning to Link-Belt liquid vibrating screens for efficient, low-cost reclamation of solids . . . for reduction of stream pollution. Their high-intensity, accurately controlled vibration permits fast, effective separation of solids from large volumes of liquid without blinding—can be easily adjusted to meet varying conditions. Write for Book 2777.

LINK-BELT

LIQUID VIBRATING SCREENS 14.024

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7.

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alone or in combination, does not exceed 1000 ppm (0.1%) of the finished frozen dessert.

To assure safe use of the additive, the label and labeling of the additive and any intermediate premixes shall contain, in addition to the other information required by the act, the following:

(1) The name of the additive, polysorbate 80.

(2) A statement of the concentration of strength.

(3) Adequate use directions. (Nopco Chemical Company, Newark, N. J.)

Nylon resins, 66, 610 and 66/610: As components of equipment used in food processing and handling (not packaging). The nylon resin 66/610 may not be used in processing and handling milk. The resins must be manufactured according to specifications set forth in the FDA regulation. (The Du Pont Company, Wilmington, Del.)

Zoalene in chicken feed to provide for the addition of certain antibiotics: This additive is used in the prevention and control of cocidiosis in chickens. The zoalene may be used:

(1) As the sole medication in the feed, or

(2) In combination with antibiotics as an aid in stimulating growth and improving feed efficiency in growing chickens.

Not less than 2.4 grams of penicillin may be used nor more than 50 grams of master standard equivalent per ton of finished feed.

To assure safe use of the additive zoalene and antibiotics in medicated feed, the label on the additive container or any intermediate mixes shall contain required information. (Dow Chemical Company, Midland, Mich.)

Hygromycin B and Chlortetracycline: In animal feed, animal feed supplements and in food for human consumption under prescribed conditions. (American Cyanamid Company, Princeton, N. J.)

Ronnel: In the feed of beef cattle under prescribed conditions. (Dow Chemical Com-

ONE CONSTANT IN THE FOOD PROCESSING EQUATION:

MORTON '999' SALT = UNVARYING QUALITY

Quality-conscious food processors, canners and packers from coast to coast are using Morton '999' Salt because it is the one ingredient you can always depend on for unvarying high quality. In fact, its constant quality has become the standard of the food industry. With Morton '999' Salt you insure a cleaner, more uniform flavor in all your processed foods.

Morton '999' is an economical premium-grade salt entirely free from bitter calcium and magnesium compounds that can distort flavor and downgrade product. It is always 99.9% clean pure sodium chloride, exceptionally low in the trace metals copper and iron.

Morton '999' is available everywhere—accept no substitute. Morton '999' is the highest purity salt commercially available everywhere in the United States. Its quality never varies from shipment to shipment, whether you buy it in bulk for direct salting, or in tablets made to your own specifications—either straight or blended with other flavoring agents. Send for complete information today!

Please send me more information on Morton '999' Salt

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. FP 2, 110 N. Wacker Drive, Chicago 6, Ill.

7498 on Reader Service Slip.

BUSY ALL WEEK, Mack B and H Models of H. & S., Inc., Jacksonville, Fla., are washed and checked on weekends. This fleet makes as many as ten trips daily to super markets throughout southeastern states. Macks' freedom from downtime is one key reason why H. & S. is almost exclusively Mack equipped.

HOME ONLY ON WEEKENDS

So remarkably free from downtime are the 20 Macks of H. & S., Inc., that you'll only see them at home when the week's work is done. The week's work? Hauling 68,000-lb. GCW loads of refrigerated groceries to the Florida, Georgia and South Carolina super markets of a large national food chain.

In this kind of hauling, where uninterrupted delivery is all-important, H. & S.'s Macks not only stay on the job, but the Thermodyne® diesel engines that power them return a steady seven miles per gallon of fuel day after day at 50 mile-per-hour road speeds.

"With Macks, we've had the fewest number of road calls we've ever experienced," says Mr. Paul E. Holstun, Executive Vice President. "Taking everything into consideration—freedom from downtime, fuel economy, road performance, dependability and over-all cost of operation—I do not know of any equipment that can match Macks."

You'll be just as high in your praise of Mack performance and dependability once you see what they can do in your operation.

See your Mack branch or distributor for the Mack made expressly for you. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

MACK FIRST NAME FOR **TRUCKS**

Association News

American Assn. for Advancement of Science

has presented the AA-AS-Campbell Award for Vegetable Research to Dr. M. E. Gallegly, professor and plant pathologist at West Virginia University, Morgantown, W. V. The award, established three years ago by Campbell Soup Co., is granted for "an outstanding single research contribution, of either fundamental or practical significance, relative to the production of vegetables . . . for processing purposes." The bronze metal, with a $1500 cash award, was given to Dr. Gallegly for his work on the late blight of tomatoes and the relationship of this aspect of the disease to that found in potatoes and the wild relatives of these two foods.

International Maintenance Institute

is a newly-formed, non-profit organization, dedicated to the recognition of the importance of industrial maintenance throughout the world. Aims of the Institute are to act as a clearing house for information, to disseminate technical knowledge and to deal with practical, down-to-earth problems and solutions in the whole broad field of industrial maintenance. Anyone interested in the organization should write to International Maintenance Institute, International Headquarters, Box 409, Greenwich, Conn.

Milk Industry Foundation

has re-elected as president Gilbert H. Hood, Jr., vice president and treasurer of H. P. Hood and Sons, Boston, Mass.

American Corn Millers Federation

has named as new president John E. Crossen, manager for General Foods Gaines Dog Foods and Corn Mill operations in Kankakee, Ill.

For more information on product at left, circle 7499 see information request blank opposite last page.

pany, Midland, Mich.)

Ethion residues in dried citrus pulp: A tolerance of 5 ppm is established for residues of ethion in dehydrated citrus pulp for cattle feed when present as a result of the application of the pesticide in the growing of agricultural crop.

A tolerance of 1 ppm of ethion on certain citrus fruits, and a previous regulation sets zero tolerances for ethion in meat and milk. (Niagara Chemical Div. of Food Machinery and Chemical Corporation, Middleport, N.Y.)

NEW ADDITIVE PETITIONS

Stearyl-2 lactylic acid: For use in shortening in non-yeast-leavened bakery products, and in prepared mixes for non-yeast leavened bakery products (Paniplus Company, Kansas City, Mo.)

50 ppm (0.005%) of antioxidants consisting of one or a combination of butylated hydroxyanisole, butylated hydroxytoluene and propyl gallate: For use in breakfast cereals. (Kellogg Company, Battle Creek, Mich.)

Hydroxylated lecithin manufactured by reacting lecithin with hydrogen peroxide and acetic acid: For use as an emulsifier in food. (Food Technology, Inc., Chicago, Ill.)

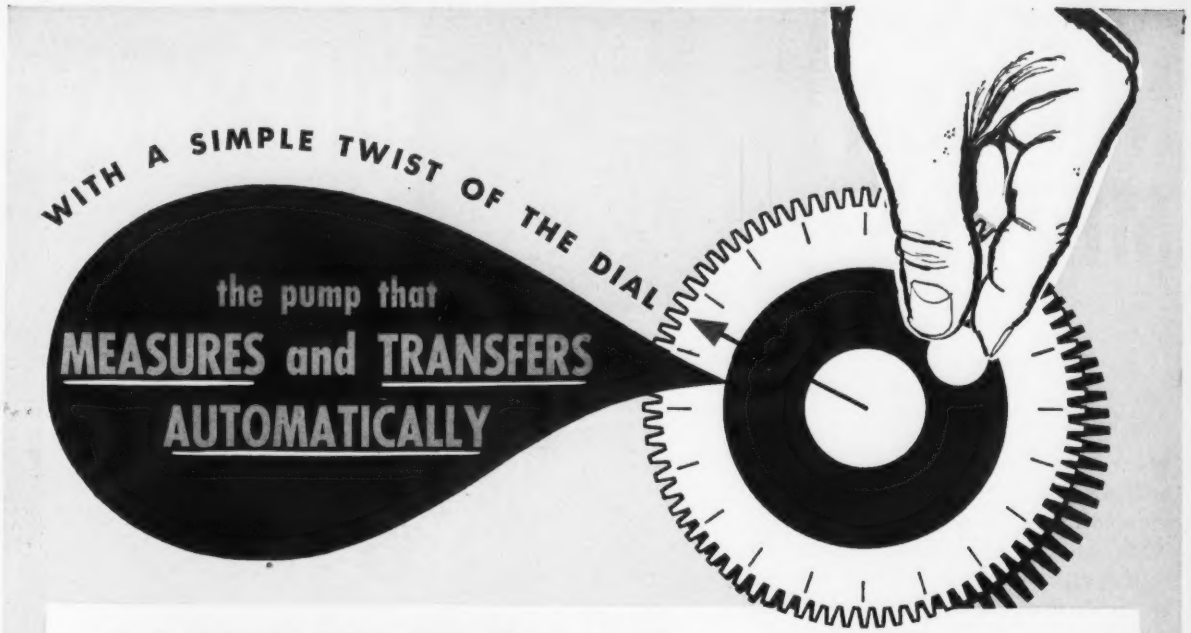
Polyoxyethylene (20) sorbitan tristearate: For use as an emulsifier in cake mixes, alone or in combination with polyoxyethlene (20) sorbitan monostearate. (Atlas Powder Company, Wilmington, Del.)

Calcium stearyl-2-lactylate: For use in yeast-raised bakery products. (C. J. Paterson Company, Kansas City, Mo.)

Promazine hydrochloride (4 gm. per pound of feed base): For use in animal feed as a tranquilizer. (Weyth Laboratories, Philadelphia, Pa.)

Dried algae meal: For use in chicken feed to enhance the color of egg yolks and broilers. (Grain Processing Corporation, Muscatine, Iowa)

20 ppm (0.002%) of sodium-2.2-dichloropropionate: For use in or on dried citrus pulp for cattle feed. (Dow Chemical Company, Midland, Mich.)



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PAT. APPLIED FOR

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The MFC-250 is made of corrosion resistant (fully sanitary 3A approved) 316 Stainless Steel. A new "dualobe" rubber impeller is featured on the MFC 250 and assures a quiet, less turbulent transfer of product.

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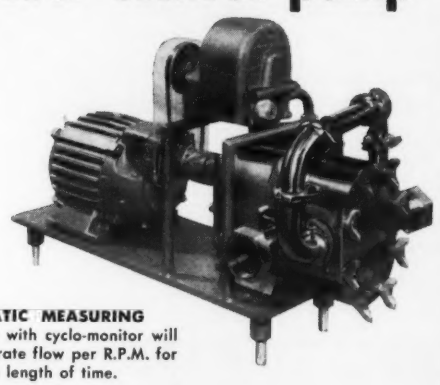

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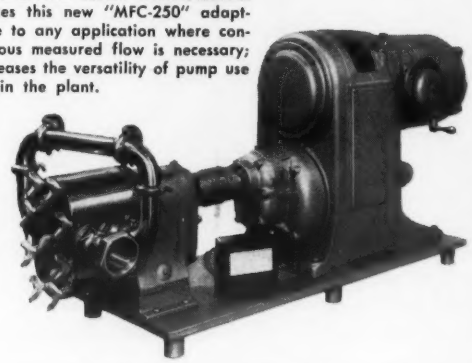

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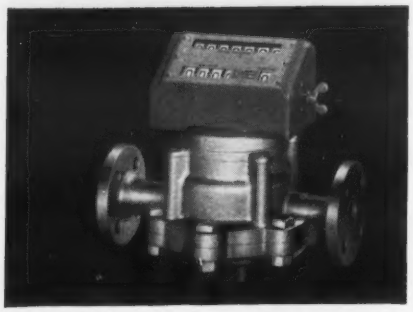

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Leading companies in the Food Industry use NIAGARA meters in batching and processing operations to measure and control flow of liquid ingredients. Metering assures uniform quality, provides inventory controls, speeds operations, and reduces operating costs.

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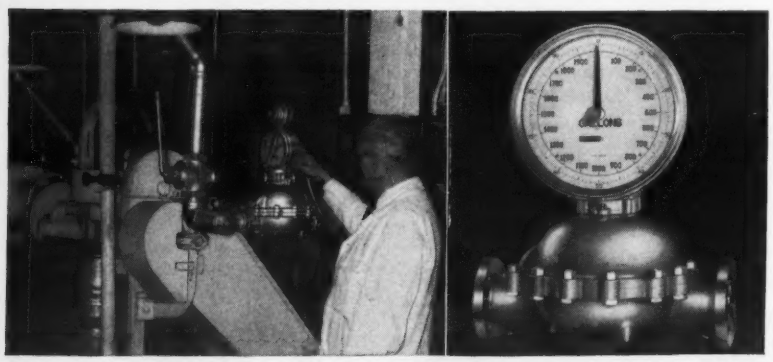

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For Complete details, write for Bulletin 48

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ORVILLE FREEMAN

New Secretary of Agriculture leans to 'managed abundance'

ORVILLE L. FREEMAN, the 42-year-old former Minnesota governor who President Kennedy has named agriculture secretary, brings to USDA the youth and desire for change that seems to characterize the whole new administration. For USDA, this is likely to mean:

- A shift of U.S. agricultural policies away from the Benson goals of largely unrestrained production and heavy reliance on open commodity markets to set prices and guide the flow of agricultural resources.
- A shift toward more vigorous use of already available farm law powers to increase food consumption and boost farm income — powers former Secretary Benson was generally loath to use — plus a more willing acceptance of the whole principle of controls.
- A new and heavy emphasis on nutrition, with programs to upgrade diets of school children, aged, and low-income people.

Prospect of these developments emerge from a review of statements Freeman has made both before and since his appointment to the top USDA post. Interestingly, much of the Freeman agricultural philosophy was echoed throughout Kennedy's campaign, particularly the nutrition theme.

Key to Freeman's administration of U.S. agricultural policy is his own concept of USDA's role in U.S. life. While Benson tended to view that role as one of guiding developments in farm production, Freeman tends to see it as leading not only the destinies of farm production but also following up on the products themselves: seeing to it that U.S. agriculture fulfills the job of maintaining high nutritional standards throughout all segments of the population.

He has said, for example, "There should be an expansion and liberalization of our present school lunch program, not as a means of disposing of a so-called surplus, but as a permanent program of value in itself."

Also, "There should be an expansion and liberalization of programs to provide adequately for the food and nutrition needs of low-income consumers, the unemployed, the aged, and the handicapped. This, too, should be a permanent program geared to needs."

Also, "Provision should be made for the establishment of a security reserve of food and fiber sufficient to insure

against any scarcity and hardship that could result from the hazards of war or natural disaster."

Much of this can be done now with little or no Congressional action because of broad powers contained in farm laws already on the books.

Secretary Freeman hopes the added demand for food created by these new programs, and an expanded Food for Peace program, will narrow the gap between present consumption and the vast productive power of the American farmer. But he believes this productive power is increasing too fast to enable solution of the surplus problem without production curbs.

He faces this need frankly. "I submit," he said recently, "that there is absolutely no other way we can beat this problem and prevent serious depression of farm products, other than managing this abundance as is already done in other segments of our economy.

How far he can go with these curbs depends, of course, on (1) the extent the farmers themselves are willing to go, and (2) how far the new, more conservative Congress will let him go.

Another factor that may influence the new Agriculture Secretary on actions relating to farm income is his reported sense of "feel" of consumer interest in farm policy. His background is urban rather than rural and he has developed strong ties with labor through his Democratic Farmer-Labor party in Minnesota.

On the other hand, he's impatient with charges that farmers are subsidized. The fact is, he has said, if farm prices had kept pace with the general price level in recent years, consumer food bills would have totaled $70 billion more since 1953 than they actually did.

Secretary Freeman himself, a Marine veteran, is tough and politically experienced. He neatly fits the mold of bright young liberals who make up the Kennedy team. The life and times of the USDA is not likely to be dull under his hand. END

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¼" to 2", Screw Ends, Bronze Body, Teflon Seats and Seals.

Fig. 700-B
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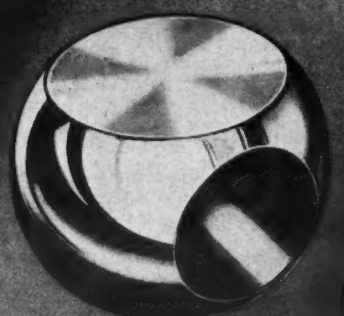

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Ralph F. Baxter

. . . vice president, operations, Hunt Foods and Industries, Inc., could not be pictured with the other executive participants in last month's FP "State of the Food Industry Survey" because his photograph arrived too late. To make up for this, here is a recent photo of Mr. Baxter.

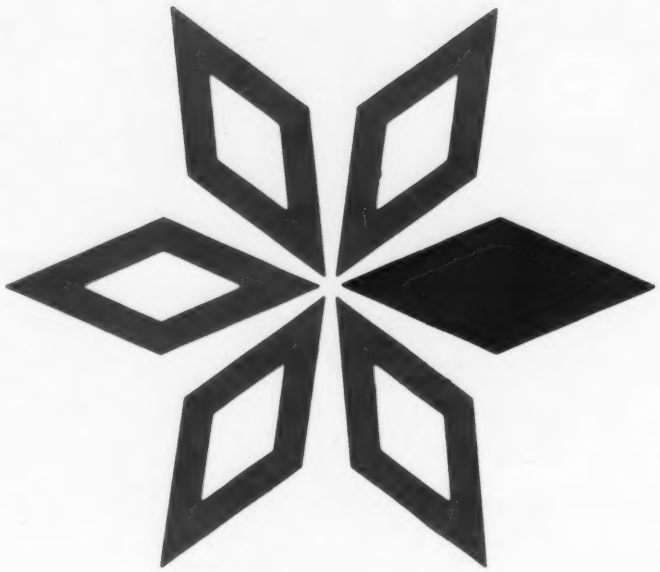
General Foods Corporation, in redefining responsibilities of several executive vice presidents, has named **C. W. Cook** as executive vice president of operations. Cook, who is also a director, will assume responsibility for all US and Canadian operating divisions.

C. W. Cook

J. S. Goldsmith

Seabrook Farms Co. has appointed **John S. Goldsmith,** formerly an independent consultant on processed foods, to the newly-created position of general manager of production. Goldsmith will work with **W. J. Scheffer,** production vice president, in the direction and management of production programs at Seabrook plants in New Jersey; Lewiston, Idaho; Santa Clara, Calif.; and planned expansions at other points.

Dr. B. F. Daubert, formerly associate director of chemical research at **General Foods Research Center,** has been promoted director of scientific research. In his new position, he will be responsible for basic chemical, engineering and



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. . . the most necessary element in the diets of both man and beast. Today salt is more significant to living than ever before. There are more than 80 varieties required by industry which has found some 14,000 uses.

Since 1886, Diamond Crystal Salt Company has been and is today, one of the country's leading producers of quality salt.

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This symbol—though it is new—represents Diamond Crystal's 75 years of continuous service in supplying all industries with a quality product.

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A symbol for quality...

DIAMOND CRYSTAL FLAKE-TYPE SALTS

- Uniformly 99.95% Pure
- Uniform in the size and grain you need—EVERY TIME

That's Diamond Crystal Flake-type Salts made by the exclusive Alberger process. Flake-like crystals of extremely high purity and precision screening provide a wide range of sizes to meet all requirements.

Diamond Crystal Flake-type Salts permit "maximum salting" for best flavor development without the bitterness that is imparted by ordinary salt containing appreciable amounts of calcium, magnesium and metallic impurities. Diamond Crystal's high purity combats the danger of costly spoilage, helps prevent "off flavoring" and protects and enhances the quality of your product. A less pure salt could form unappetizing scums and discolorations on vegetables, or stimulate oxidative rancidity in foods containing fats and oils. All these factors give Diamond Crystal Flake-type Salts a measurable margin of superiority over ordinary granular type salts.

Diamond Crystal's staff of trained food specialists will assist you in selecting the proper flake-type salt for your product. Learn exactly how these features can benefit you. Call or write the nearest Diamond Crystal sales office.

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plants companies personalities

analytical research. Newly appointed as director of scientific development is **Dr. Domenic DeFelice.** His activities will include direction of the development of new and improved products, applied product and process technology and the research services function. General Foods also named **Dr. H. B. Smith** as director of research planning. This position will entail coordinating the activities of research center planning teams, technical business opportunity searching and technical opportunity searching. Named as director of research center operations was **G. A. Kolman.**

Newly appointed as executive vice president of **Foremost Dairies, Inc.,** San Francisco, is **James L. Rankin,** recently corporate vice president and a director of The Pillsbury Company. Rankin also is chairman of the Wheat Flour Institute, a director and member of the executive committee of the Miller's Federation and is active in GMA.

J. L. Rankin R. J. Young

Robert J. Young, Jr., recently with Klein Chocolate Co., Elizabethtown, Pa., has been appointed director of engineering for **Cook Chocolate Co.,** Chicago. This is a new opening brought about by Cook's expansion plans for the next few years.

H. W. Lay & Company has begun operations in its new million-dollar plant in Prince Georges County, Md. The largest such plant in the Washington, D.C., area, it has production capacity of 160,000 lb of processed potato chips and 130,000 lb of "Fritos" corn chips each week. The plant is Lay's third major expansion in the last two yr.

Millions of meals in corrugated

From appetizer to dessert, every course in the American menu is rich with the variety of a thousand different dishes, served by the nation's legion of food producers. Many of these leading companies use boxes by Hinde & Dauch. And for good reason: They can rely on H&D to supply money-saving *corrugated containers in volume.*

West Virginia Pulp and Paper

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17 Plants • 42 Sales Offices • Sandusky, Ohio

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FOOD PROCESSING
FEBRUARY 1961
VOL. 22 NO. 2

Are America's food processors on the

Threshold of a new handling-shipping era?

KARL ROBE, Associate Editor
NORB LEINEN, Associate Editor

On these pages FOOD PROCESSING presents details of what may prove a remarkable technological breakthrough in the field that heretofore has been something of a "stepchild" to food processors.

Now operational, following more than four years of developmental engineering by the inventor — Addison Brown, chairman of Unit Load Car Corp. — the new "Unit Load" system of palletless handling and shipping offers revolutionary potential for savings and efficiency in every handling operation — from the field right into retail chain outlets.

In brief, the system offers integrated handling of unit loads in plant or warehouse, on shipping and receiving docks and in transit. This reportedly can be done in less time, with less capital equipment, at less cost and with less resulting damage to products.

Industry leaders are interested. Specifically, interest is being stirred by these major advantages:

- Mechanically loads or unloads carloads or truckloads
- Eliminates carton-by-carton handling
- Loading-unloading time — minutes instead of hours
- Involves handling palletloads — but *without* pallets
- Eliminates in-transit pallets
- Eliminates all in-transit damage
- Eliminates dunnage
- Eliminates demurrage
- Standardizes mechanically all rail, warehouse and truck operations

Until now, top interest has been among top chain distribution-center managements — for example, Jewel Tea Company in Chicago — and among the railroads.

The latter see the system as the first really practical means of eliminating an annual in-transit damage bill approximating $125 million.

As this issue goes to press, a number of giant food processors themselves — plus some of the largest shippers in the chemical and other industries — are converting to Unit Load shipping.

Ship *unit loads* without pallets via rail, truck

UNIT LOAD SYSTEM handles loads by eight-tine fork onto meshing floor grids of van and flatbed trailer, or side-loading rail car.

System uses these components: an eight-tine fork attachment for existing lift trucks (replacing the conventional two-tine fork), a portable conversion base into which the eight tines mesh, and grooved floor of truck van, flatbed or rail car into which eight tines mesh to take or leave the unit load.

Here's how system works. At shipping point, unit loads are handled and stored on conversion bases (permanent transfer pallets made of high-

text continued on page 32
illustrations next page

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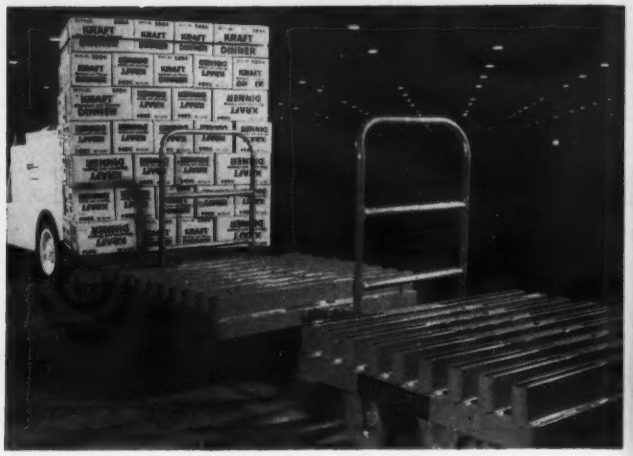

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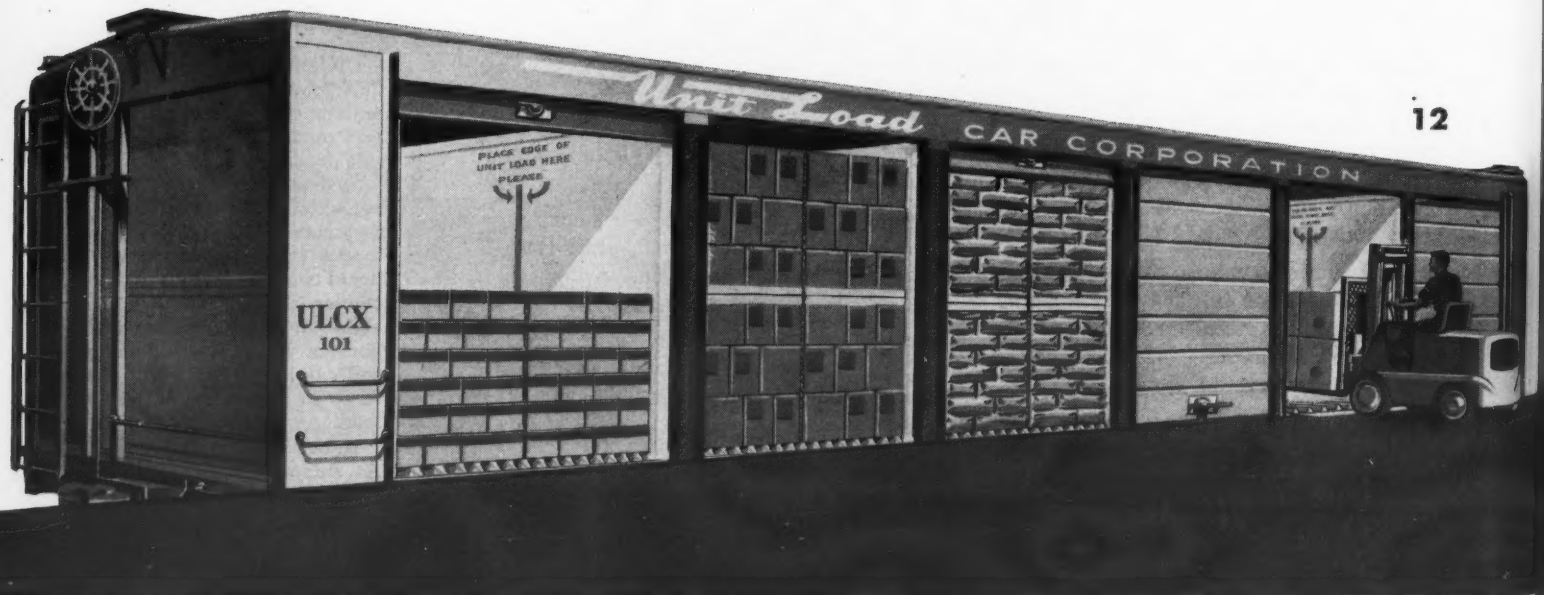
From Storage to Unit Load Car or Trailer in Minutes vs. Hours . . . Pennies vs. Dollars

Here's how system speeds loading



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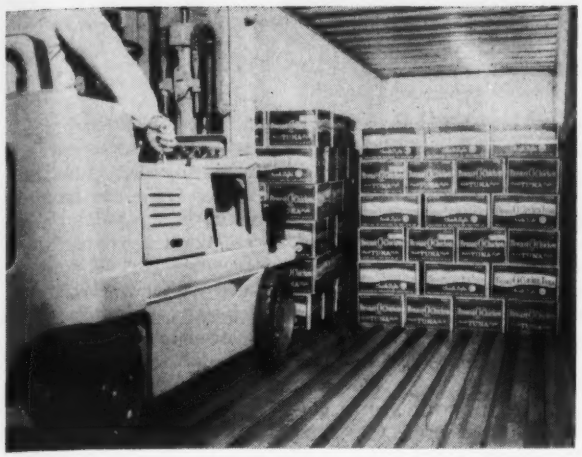

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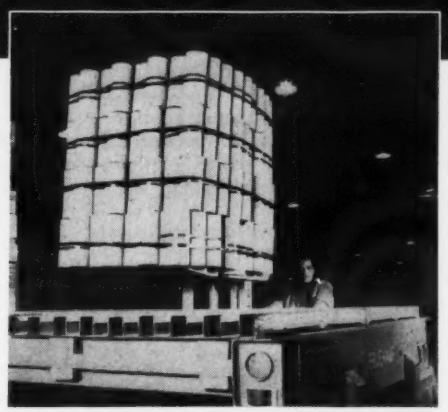

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1 Unit load from storage on metal conversion base, ready for product to be picked up and transported to loading area without base

2 "Take-it-or-leave-it" option is 3 feature of pallet-like portable conversion base. To take the base, along with load it supports, fork operator engages tines beneath the closed corrugations (top). To take only the load, and leave the base, operator inserts tines in the open corrugations (lower)

4 Order-picking pull-trucks with grooved floors, hooked up into "trains," carry palletless unit loads quickly from storage to dock — freeing fork trucks from long in-plant or in-warehouse runs

5 Lift truck with Unit Load system attachments — including multiple-tine fork, designed to handle unit loads with or without the conversion base — loading trailer equipped with Unit Load floor

6 Unit Load flatbed trailer with 7 corrugated floor loading or unloading unit loads without pallets, with the eight-tine forks. Inset shows close-up of corrugated Unit Load floor

8 Each of Unit Load Car's six compartments holds up to eight 48-by-40-in. unit loads. However, because of their weight, most canned food products will be single-tiered only, as shown

9 After depositing load, multiple tines of fork retract below floor level. Same method is used to pick up in unloading car or truck

10 Lighter food products may be double-tiered. In such cases, pusher holds unit in place while tines retract. To unload second tier, tapered tines are bayoneted between wasteboards between loads

11 Front view close-up of eight-tine fork truck shows how tines lower easily into corrugated floor beneath load, to pick up or put down on car floor. Fork truck's tires are more than double width of grooves, permitting easy travel

12 Solid or mixed units are loaded or unloaded without pallets in minutes instead of hours, at tremendous labor savings. Lading cannot shift, totally eliminating all damage in transit. No dunnage, no bars, no strapping, no car preparation and no demurrage

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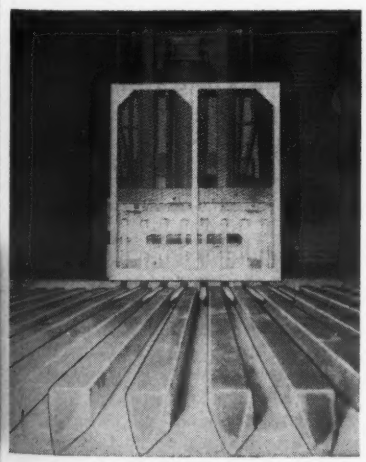

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Threshold of a new handling-shipping era? continued

tensile steel, and furnished on lease at 25 cents per mo.).

The bases are a series of grooves, one set of which is open, and one set of which is closed. When fork tines enter the closed grooves, both base and load are picked up. When tines enter the open grooves, only the load is picked up — leaving the base.

Thus, the fork driver can either take or leave the conversion base — and hence the name. When a unit load is shipped, the base remains at the shipping point.

The conversion bases eliminate pallet expense for unit load shipments — currently as high as $3 to $4 per palletload, including the strapping and gluing. Additional expense is involved in shipping back the empty pallets.

Further, bases are only 2⅝ in. high, thus occupy only 40 per cent of vertical height in stacks or storage compared with conventional six-in.-high wooden pallets.

Bags, generally on a sheet of paperboard, also can be handled on the eight-tine fork. Tines are closely spaced (1¼-in. wide on 4¾-in. centers) for load stability.

A number of chains already use one form or another of take-it-or-leave-it system in captive warehouses. However, all of these are on varying modules useful only in the specific warehouse operation.

Some of these food distributors now are converting to the eight-tine standardized-module system so as to receive palletless loads via the Unit Load Car and Trailer System — and extend savings beyond the warehouse.

Some chain distribution centers which have used the take-it-or-leave-it idea for several years also incorporate in the system an order-picking pull-truck with grooved floor — permitting mechanical unit loading with the eight tines into their over-the-road trailers.

In processing plants, the Unit Load trailer train can be unit loaded without pallets, by means of a clamp truck.

At the truck- or rail-loading dock, the trailer train is unloaded by the eight tines into truck or rail car. Elimination of pallets in storage saves the tremendous investment and repair cost of wooden pallets, plus increasing vertical storage capacity by approximately two ft.

Shipping two tiers

Ordinarily, with maximum

. . . an exclusive arrangement

. . . for regular shipment

. . . of specific products

. . . from point-to-point

. . . on a continuing basis

All Unit Load Cars are operated in a pool as a private car line by the Unit Load Car Corp. The cars are placed in the service of participating shippers only — who have committed their continuing traffic to the participating railroads which are members of the private car line pool.

The system will have nothing to do with "random" shipments, but is designed for transporting specific products from point-to-point, and other specific products back to original point of origin — on a *continuing basis*.

A typical arrangement might involve one of the large West Coast food companies (which ordinarily ships between 100 and 200 carloads Eastward daily), five Chicago food chain operations and one or more Chicago industrial firms shipping regularly in quantity to the West Coast.

If the West Coast processor ships five of his daily Eastward-bound carloads in Unit Load cars — and allowing for a 20-day over-all "turnaround" period — 100 Unit Load cars would be required.

The turnaround period would include loading at the processor's dock in the Bay Area, travel to Chicago, unloading in Chicago by the five receiving chain warehouses, traveling to the new load-up point in the Chicago area, loading a new Westward-bound cargo on the five cars, travel to the San Francisco area, switching and unloading and return to the original food-processor-shipper for re-use.

Advantage to the railroads is constant, tightly scheduled, two-way-loaded freight traffic. Whereas the average boxcar travels 50 miles per day (averaging out the time car sits in the gathering yard, is rejected by this or that shipper, etc.), the Unit Load car is expected to average 400-500 miles daily — traveling, in effect, much like a passenger train.

Trucks, van trailers and flatbed trailers can easily be converted to the Unit Load system by installing the necessary flooring. This can be done by representatives of trailer manufacturers.

New trailers equipped with Unit Load flooring now are available from the major trailer manufacturers.

Many of the large motor freight common carriers now are participating in the Unit Load program, and are prepared to serve Unit Load shippers.

freight-car capacity at 100,000 lb, and with low freight rates beginning at the 75,000-lb level, most food shipments because of their inherent weight (particularly with canned foods) will be single-tiered in the Unit-Load Rail Car compartments.

However, when two tiers are shipped without pallets — as in the case of instant potatoes and other such "fluff" products — wasteboard sheets with the lip bent up are deposited atop the first or bottom load.

Second load is deposited without pallet on the wasteboard, and tines withdrawn while pusher on fork truck holds load on the stack.

At receiving end, tapered tines are bayoneted between wasteboards to lift off the second tier.

Unit Load RR Car

Four 48-by-40-in. unit loads fit snugly into each compartment, two wide and two across, eight if double-tiered.

While most chains standardize on 48 by 40, the Unit Load Car is designed to permit shipment of a wide variety of unit load sizes. The 84 in. between bulkheads can be increased up to an additional 10 in., for a total compartment width of 94 in.

Each compartment's walls have pneumatically actuated faces which, after loading is completed, may be moved forward by pushbutton toward the load five in. on each side — a total of 10 in. — to give a snug fit.

Expanded plastic sandwich-panel construction provides a completely insulated car throughout.

High-speed loading and damage-free shipment are principal advantages of the side-loading compartment car. Doors open upward like overhead garage doors for loading from either side, and at dock level or from ground level — providing a loading-unloading option unique in rail shipment — in that it is the only rail car with such dockside versatility.

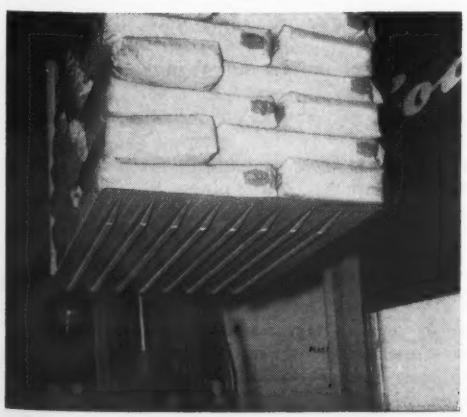
Since dunnage is eliminated, entire car can be loaded and sealed in minutes vs. hours — by only one man, rather than the several ordinarily needed.

Faster turn-around at loading and unloading points eliminates the cause of costly demurrage — plus more efficient use of equipment and faster shipping service.

Dock congestion is greatly reduced, and efficiency per man-hr is increased.

Only one Unit Load test car is now in service, but quantities now are under construction and already assigned to various processors and chains.

END



Spreading unit load over eight tines — area 48 by 40 in. — permits mechanical handling of bagged goods, using only a wasteboard sheet

BUYERS' GUIDE

to companies currently participating in the Unit Load program*

Fork lift trucks

AUTOMATIC TRANSPORTATION CO.,
Div. of The Yale & Towne Manufacturing Co.,
149 W. 87th St., Chicago 20, Ill.
7505 on Reader Serivce Slip.

BARRETT-CRAVENS CO.,
630 Dundee Rd., Northbrook, Ill.
7506 on Reader Service Slip.

CLARK EQUIPMENT CO.,
Industrial Truck Div.,
1921 Escote St., Battle Creek, Mich.
7507 on Reader Service Slip.

FORD MOTOR CO.,
Tractor & Implement Div.,
American Rd., Dearborn, Mich.
7508 on Reader Service Slip.

HYSTER CO.,
2902 N.E. Clackamas, Portland 8, Ore.
7509 on Reader Service Slip.

LEWIS-SHEPARD PRODUCTS, INC.,
125 Walnut St., Watertown 72, Mass.
7510 on Reader Service Slip.

MERCURY MANUFACTURING CO.,
Subsid. of Pettibone-Mulliken Corp.,
4730 W. Division St., Chicago, Ill.
7511 on Reader Service Slip.

THE RAYMOND CORP.,
131 Madison St., Greene, N.Y.
7512 on Reader Service Slip.

TOWMOTOR CORP.,
1226 E. 152nd St., Cleveland 10, Ohio
7513 on Reader Service Slip.

THE YALE & TOWNE
Manufacturing Co.,
Yale Materials Handling Div.,
11,000 Roosevelt Blvd., Philadelphia 15, Pa.
7514 on Reader Service Slip.

Railroad car and general information

UNIT LOAD CAR CORP.,
1501 E. 96th St., Chicago 28, Ill.
7515 on Reader Service Slip.

Industrial trailers (in-plant)

LEWIS-SHEPARD PRODUCTS, INC.,
125 Walnut St., Watertown 72, Mass.
7516 on Reader Service Slip.

MERCURY MANUFACTURING CO.,
Subsid. of Pettibone-Mulliken Corp.,
4730 W. Division St., Chicago, Ill.
7517 on Reader Service Slip.

NUTTING TRUCK & CASTER CO.,
1201 W. Division St., Faribault, Minn.
7518 on Reader Service Slip.

S I HANDLING SYSTEMS, INC.,
P.O. Box 70, Easton, Pa.
7519 on Reader Service Slip.

Truck trailers (over-the-road)

FRUEHAUF TRAILER CO.,
10940 Harper Ave., Detroit 32, Mich.
7520 on Reader Service Slip.

Fork truck accessories

CASCADE MANUFACTURING CO.,
P.O. Box 7587, Portland 20, Ore.
7521 on Reader Service Slip.

Industrial tape

MINNESOTA MINING & MANUFACTURING CO.,
900 Bush Ave., St. Paul 6, Minn.
7522 on Reader Service Slip.

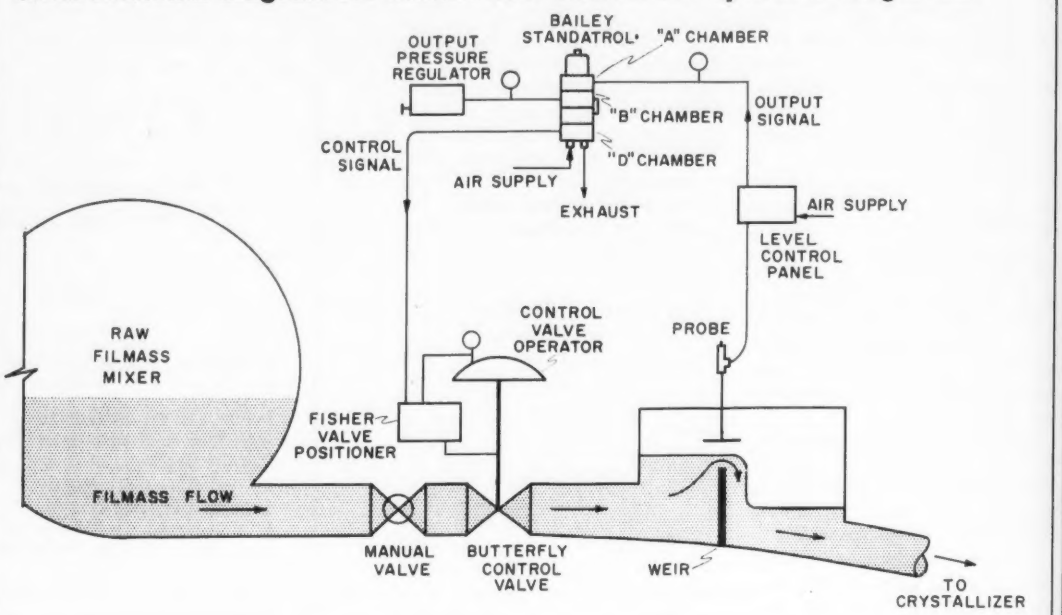
* List complete as of time publication went to press.

Rate of flow is sensed by capacitance level-control probe which is set at fixed 3½-in. height above weir. As liquid level approaches probe, capacitance changes. This decreases output air pressure signal from level control panel which is transmitted to "A" chamber of Standatrol.

"D" chamber output pressure then increases to keep system in balance. This change in pressure from "D" chamber automatically positions butterfly valve which decreases level in weir until capacitance level control system is again in balance.

While flow rate could be controlled by changing height of probe above liquid, it was found in actual practice that changing air pressure setting works better. Accordingly, flow rate is controlled by changing pressure setting at regulator which provides a fixed, constant supply of air "B" chamber

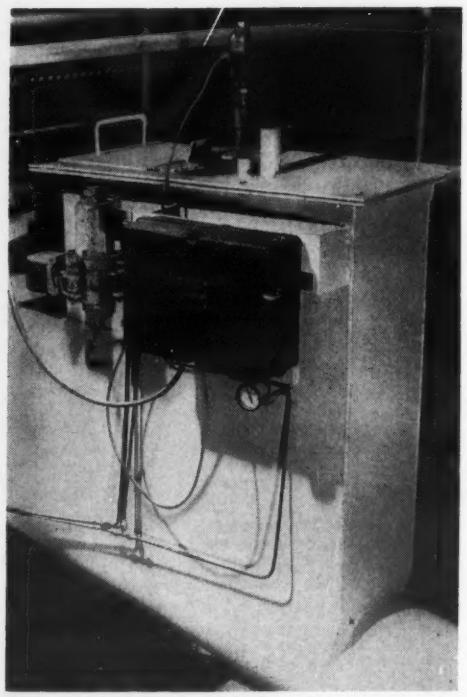
Cross sectional diagram for filmass flow control for Spreckels Sugar Co.



Control flow of viscous, slow moving liquids without contact

G. W. MILES, Jr., Superintendent
A. G. FROST, T. W. BAKER, Engineers
Spreckels Sugar Co.
KARL ROBE, Associate Editor

Spreckels mounts level control probe above level of flow weir in pipe; signal actuates control valve as level rises or falls



Weir box was built on each of four 12-in. inclined outlet pipes from mixers. Level control panels are mounted on each weir box

PROBLEM: Raw filmass (mixture of sugar crystals and molasses from crystallization step) comes from vacuum pans as a thick, heavy, slow flowing liquid mass (91° to 93° Brix).

It is stored temporarily in two 11,000-gal mixing tanks which act as surge reservoirs and from which filmass feeds to four crystallizers.

Each mixer has two 12-in. outlet pipes. Flow was formerly controlled by manually setting each of the 8-in. butterfly valves in these four lines so that liquor was uniformly distributed to each crystallizer.

If flow to crystallizers was not evenly proportioned, then production was lost as one or another crystallizer worked below capacity. If flow was too great to one crystallizer, efficiency dropped and yield suffered.

Spreckels desired to automate this control function which required one man per shift to constantly patrol the flow and change valve settings as needed.

Since flow rate of the heavy liquor is small (16 gpm), and available head through the 12-in. pipes is consequently low, conventional orifice-plate or impeller-type flow sensors, or pressure differential methods could not be used.

Solution: A weir or dam arrangement was built into the pipes so that height of liquid over the weir became a measure of the rate or amount

KESCO vital wheat gluten adds PROTEIN to your products... VITALITY to your sales

Today's consumers are "high protein" conscious. You can meet this demand for protein in your new products with the addition of small amounts of Kesco Vital Wheat Gluten to your formula.

Many food processors are also putting new life in established products by adding Kesco Vital Wheat Gluten. Such "renewed" products are often marketed at premium prices.

Kesco Vital Wheat Gluten has no taste . . . will not change flavor of original product. But, it does give you a strong new selling feature.

For samples, prices and more information on the many possible uses of Kesco Vital Wheat Gluten call or write:

THE KEEVER STARCH CO.
538 East Town Street
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Processors of grain products for industry since 1898

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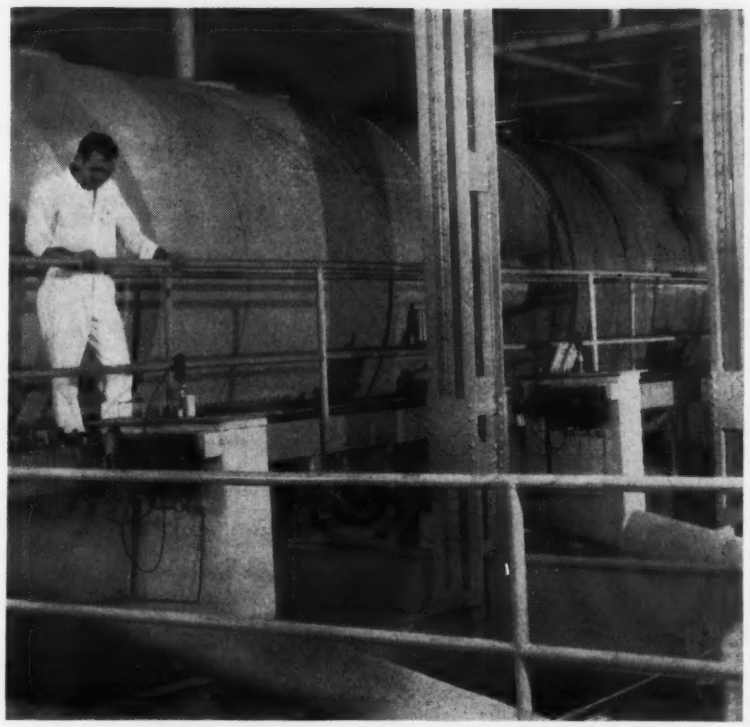

Flow from these two 11,000-gal mixers is equally proportioned to four crystallizers by weir-level control system

flowing. This height is measured without actual contact of the viscous liquor by a probe, see diagram.

Probe was adapted to sense the air-liquor interface, since direct contact in liquids, as is conventionally done, would soon accumulate a coating of filmass which would interfere with instrument's sensitivity.

To do this, a flat strip of stainless steel, 2 in. wide and 12 in. long was attached to bottom of probe to increase sensitivity and span by increasing the capacitance area.

As liquid level rises above weir, capacitance increases in bridge circuit of oscillator unit within level control instrument.

Through a series of pneumatic-electronic rebalancing actions, air pressure is applied to a valve positioner. This throttles the 8-in. butterfly valve until level of liquid above weir drops to pre-set height again.

Results: Flow into each of the four crystallizers is controlled automatically, and full-time, three-shift attention has been eliminated.

Crystallizers work at more efficient operating levels, which smoothes production and assures maximum yield.

Payout period based on savings is less than two years.

Robertshaw-Fulton Level-Set Controller is product of Robertshaw-Fulton Controls Co., Santa Ana Freeway at Euclid Ave., Anaheim, Calif.

7524 on Reader Service Slip.

Standatrol pneumatic proportioning control unit is product of Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio.

7525 on Reader Service Slip.

Fisher valve positioners and operators are products of Fisher Governor Co., Marshalltown, Iowa.

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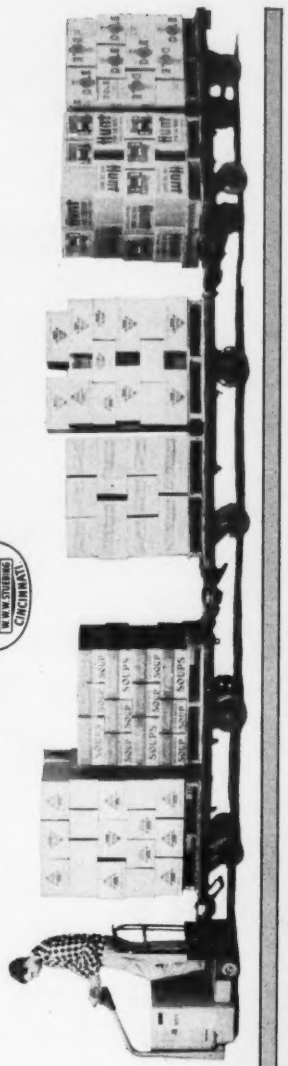
• 100% more steering ease with two wheel drive
• Power unit removal complete in 20 minutes



• Two driving wheels instead of one
• Sealed alloy gears instead of chains

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A GREAT NAME IN TRACTORS

This powerful Hydroelectric Tractor hauls one or multiple units with speed, safety and ease of operation. Features the exclusive DYNA-DUAL POWER UNIT. Power enough to pull loads of 6000 lbs. or more at low cost.

LIFT TRUCKS, Inc. CINCINNATI 14, OHIO

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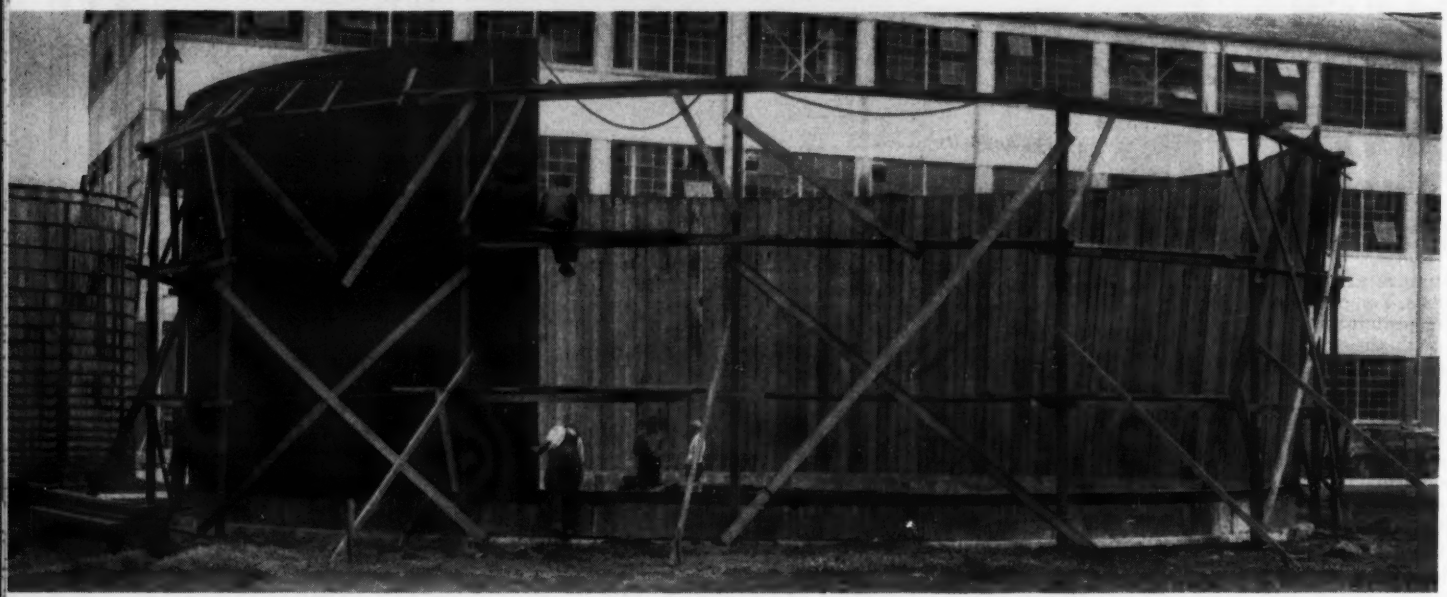
Tanks of new plastics, "wonder metals" or combinations thereof may steal the spotlight, but there are still

What is believed to be the largest wood tank in the South has side staves 20 ft high by 3 in thick and roof boards 1 in. thick, all of California Redwood. Special clean-out line is cast into 2-ft thick base on which tank is erected. Below, tank during construction



Red Star's reservoir tank holds temperature without insulation

Problem: To meet shortage of chilled water during peak production periods at its Belle Chase, La., plant, Red Star Yeast and Products Company decided to store water during off-peak periods rather than invest in additional refrigeration equipment.

What Red Star wanted was a 400,000 gallon reservoir which, without insulation, would hold the temperature rise of the 55 F water to a minimum even though ambient air temperatures during summer, daytime for the region average 95 F DB and 80 F WB.

Bell Chase plant is the only plant in this country specifically designed to make active dry yeast (8 per cent moisture). It uses chilled water in large quantities — plant operates 24 hrs/day, 5 days/wk —for cooling fermentation tanks and washing yeast.

All of plant's water is pumped directly from the Mississippi River. After purification, chlorination and filtration, water intended for process uses is chilled from 85 F to 55 F by a vacuum system maintained by steam jets.

Solution-Results: After considering various tank materials, Red Star decided on an uninsulated wooden storage tank to smooth out the chilled-water demand peaks.

Tank, which is 60 ft in diameter, see photos above, has been in operation since May 1, 1960. According to F. Preston Mottram, Vice President of manufacturing, who directs Red Star's engineering activities: "The tank is fulfilling its purpose beautifully.

"To keep the water fresh, we constantly pump into and out of tank, except of course over weekends.

"It is over the weekends, however, that we particularly

Many uses for modern wood tanks

FRANK L. BONEM
Associate Editor

appreciate the insulation value of wood. In an actual test over a 72-hr period in July, 1960, water gained only 1 degree. (Water temperature rose from 57 to 58 F. Average ambient air temperature was 86.7 F.) By comparison, a steel tank would pick up 5-6 degrees on a single hot day."

An added benefit in using a wood tank is the savings in maintenance over tank's expected life—conservatively 15-20 years.

A steel tank holding same type of water at pH range of 7.5 to 9.0 would blister on inside and would therefore have to be sandblasted and repainted every 3-4 years at a minimum cost of $0.40 sq/ft. No such treatment is necessary for the wood tank.

Outside maintenance of tank, primarily painting, is the same as on steel tanks.

Cost of installation was about $30,000, approximately the same as for a steel tank.

Red Star also uses a number of wooden tanks for storing hot molasses. END

Detailed information on modern wood tanks may be obtained from the National Wood Tank Institute, 333 North Michigan Ave., Chicago 1, Ill.
Check 7528 opp. last page.

Applications determine lumber

Tanks of redwood, oak or fir are widely used in fermenting and aging wine. Wood tanks add "character"; actually help in aging. Some tanks have been in continuous service for over 100 years and a "seasoned" tank is considered a genuine asset to a winery.

In the beer industry, brewers have used white oak and cypress tanks; recently have also used tanks of redwood and douglas fir

Tank farm for sauerkraut and pickles. Hardwoods such as cypress, western red cedar and white oak readily withstand corrosive effects of pickling solutions. Average life of a pickle or vinegar tank is 30 years and 50-year old tanks are not uncommon.

Slopped over brine no longer is harmful to metal hoops which are protected by polyethylene covers. If tanks are left empty during off season, however, they must be guarded against drying out and shrinking

Wood tank at left in photo is used for storing vinegar, two steel tanks for storing oil and other ingredients at Henri's (Food Products) Dressing, Milwaukee, Wis. For distilled vinegar, douglas fir tanks are usually preferred while for fermented vinegar, redwood tanks are frequently used.
Tanks for processing and storing food products range in size from small rectangular ones of about 85 gal to large cylindrical ones of about 50,000 gal

How sound is the dietary trend which is more and more being urged onto the entire population to

shift from solid fats to edible oils?

HOWARD P. MILLEVILLE
Editor

Top medical body of American Heart Association recommends changes in fat consumption to help prevent heart attacks and strokes was the heading on a news release last December direct from the Association's headquarters accompanying a report on "Dietary Fat and its Relation to Heart Attacks and Strokes."

It set up another wave of articles in the consumer press favoring the use by the American consumer of more edible oils containing poly-unsaturated fats. There followed full-page advertisements in the daily press endorsing the position of the AHA by various vegetable oil processors.

This report by the Central Committee for Medical and Community Program, the highest medical and scientific body of the AHA, was, in our opinion, so poorly organized that distorted interpretations were inevitable.

One interpretation of this report is that the AHA sought to give official recognition to certain diet changes which many practicing MD's were already recommending to their patients having a heart condition. But to conclude that the same dietary changes are in order for the entire population is an unwarranted extrapolation. Thus the report concludes:

In conclusion: the reduction of control of fat consumption under medical supervision (emphasis supplied), with reasonable substitution of poly-unsaturated for saturated fats, is recommended as a possible means of preventing atherosclerosis and decreasing the risk of heart attacks and strokes. This recommendation is based on the best scientific information available at the present time.

More complete information must be obtained before final conclusions can be reached. Such information can be obtained only through intensified research into the causes and prevention of atherosclerosis — a program to which the American Heart Association is fully dedicated.

The specific recommendations sanctioned in this report were fully described previously in our July, 1957, issue by Dr. Frederick J. Stare, one of the members of the AHA committee issuing the current report.

Last fall, the present status of our knowledge in this field was reviewed at the Fifth International Congress on Nutrition. In our October, 1960, issue we reported: "Nutrition experts from all over the world say it's premature to condemn fats as cause of heart disease."

Why confusion continues is not too difficult to explain. What has happened is that certain respectable medical and nutrition experts believe they have an insight to the solution of the heart disease problem. They are impatient with the rigorous demands of the top-notch authorities who demand scientific proof.

They are the "enthusiasts" who believe that they can save human lives now without waiting for scientific proof.

The position of the "enthusiasts" appeals to the humanitarian instincts of reporters of the consumer press. Hence the "enthusiasts" make the headlines more frequently than the conservative top-notch scientists. Among the "enthusiasts" we would include: Dr. Ancel Keys, Professor and Director, Physiological Hygiene, University of Minnesota; Dr. Laurance W. Kinsell, Director of Metabolic Research, Alameda County Medical Institutions of California; Dr. Norman Jolliffe, Director, Bureau of Nutrition, Department of Public Health, New York City; Dr. Jeremiah Stamler, Director of Heart Disease Control Program, Board of Health, Chicago; and Dr. Hugh M. Sinclair, Magdalen College, Oxford University.

Swelling the ranks of the enthusiasts are the health food faddists, who do much to compound the confusion with their unqualified claims.

Despite the confusion, certain points of agreement emerge reflecting a measure of progress.

Agreed to by all authorities is that the average American male, who is some 15 lbs overweight, would be better off by reducing the number of calories he consumes daily . . . and this usually means reducing the fats (and sugar) in his diet proportionately more than the other items.

There also seems to be agreement that in the average diet the level of linoleic acid (one of the poly-unsaturated fatty acids) could be increased somewhat. In the dietary recommendations of the Food and Nutrition Board of the National Research Council, it is recommended that 1% of the total calories be contributed by the essential fatty acids which includes linoleic. Just how much the increase should be is now being determined by further research.*

It would also appear that hydrogenation practices should be modified to conserve more of the linoleic acid as well as the natural *cis* form of the fatty acids in natural fats. These modifications have already been made to some extent by the industry. Furthermore, the industry has indicated that it will make additional changes just as soon as there is general agreement by the authorities as to the changes that ought to be made.

But the indiscriminate substitution of unhydrogenated vegetable oils for solid fats in the diet not only is unwarranted on the basis of present information but seems undesirable until we know more about the possible far-reaching side effects. Thus there is reason to suspect that an excess consumption of refined vegetable oils high in polyunsaturated fatty acids may increase markedly the body's need for tocopherols (Vitamin E), which function in tissue as an anti-oxidant.

The hope now is that in the not too distant future further research in this field will unravel the complex phenomena associated with disordered fat metabolism and atherosclerosis, heart attacks, and strokes.

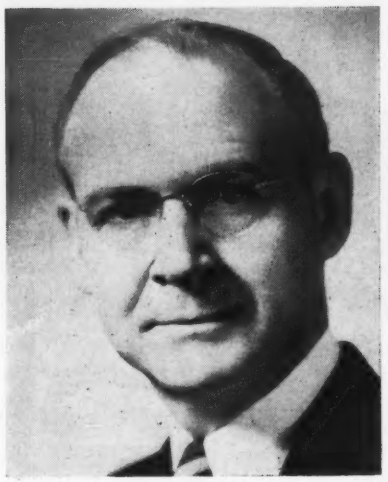
Thus, the most recent report of the Nutrition Foundation points out that the scope of research in the body's use of edible fats has been advanced dramatically by newly developed analytical methods that permit measurement of either stored or newly formed fats inside the body.

A survey of research progress in this field was made by the Executive Director of this Foundation at our request for our readers. It follows on the opposite page.

*As a point of reference, consider that 1 to 1½ teaspoons of the vegetable oils—corn, cottonseed, or soya—contributes essential fatty acids equal to 1% of the calories in the average diet. Also, that essential fatty acids are available from other sources than vegetable oils, e.g., fish, poultry, pork.

A guide to technological trends as . . .

Research on fats progresses



DR. CHARLES GLENN KING
Executive Director of
The Nutrition Foundation, Inc.

WHEN A FIELD of research is advancing rapidly, and particularly when the public is directly involved, there is a corresponding tendency to accept reported conclusions prematurely and to adopt short cuts in action.

A second stage generally follows, based on new and reliably established facts and principles, from which the public and industry alike can make substantial progress. Research on fats should soon reach the second stage.

Fundamental studies of the role of fats in human nutrition were long overdue, compared with the greater attention given to other classes of nutrients before the past two decades.

Fortunately the Scientific Advisory Committee and the Board of Trustees of the Nutrition Foundation recognized this situation when first planning a new research program in 1942. From that date forward they have supported pioneering work in this area as vigorously as the budget permitted.

Many of the resulting early discoveries have been at the forefront of progress in basic concepts and in meeting practical problems . . for example:

(a) in identifying the origin and end products of cholesterol, glycerides of known structure, and specific fatty acids (via acetate groups supplied from sugars, fats and amino acids, with coenzyme A as catalyst),

(b) in discovering major chemical steps by which fatty acids and cholesterol are linked with specific sugars, proteins, vitamins and minerals in furnishing energy or in forming new fats,

(c) in establishing new data on the composition and nutritional origin of many fats, including human milk fat, cow's milk fat and fats circulating in the blood stream or stored in specific parts of the body,

(d) in developing greatly improved methods of fat analysis that have changed the whole atmosphere of fat research,

(e) in partial evaluation of agents that control appetite, satiety and obesity, and

(f) in studies of the many complex factors that appear to affect the incidence and severity of atherosclerosis, coronary heart disease, "strokes," fatty livers and fat-related hormone functions.

Research focal points of greatest interest now are with respect to determining: (a) the optimum ratios of specific fatty acids in a well balanced diet, (b) their range of variation with different percentages of total calories furnished by fats, and (c) whether moderate, short-term changes in serum cholesterol concentration furnish a satisfactory index of long-term effects upon atherosclerosis, coronary heart disease, cerebral "strokes" and related breaks in health.

Still no causal relationship between either serum cholesterol measurements or fatty acid intake and atherosclerosis and heart attacks

A key asset in the program is available in the new and strong research teams developed in leading medical, agricultural and graduate schools, plus well trained scientists working in industry.

Three major factors contributed to the intensified interest and obvious need for vigorous progress in research on fats:

(a) Public health and insurance records showed that the steadily increasing life span here and in other technically advanced countries was accompanied by a greater incidence (and death rate) of diseases associated with excess body fat. Why? No one knew, but evidence from animal studies pointed in the same direction —too many calories over a long period were a serious disadvantage. Yet for short intervals of time, a deficiency of calories will lower mental and physical efficiency more quickly than is true for any other nutrient.

(b) Success in preventing or controlling many of the most damaging infectious diseases had shifted the emphasis of leaders in the health professions from infections to metabolic and chronic diseases—these were in large part still of unknown origin.

(c) Dramatic improvements in research techniques—as in the use of radiocarbon, heavy hydrogen and gas-liquid phase chromatography—made it possible to establish the origin and functions of all types of fatty materials with an accuracy, speed and sensitivity far beyond anything possible in earlier years.

On the positive side, fats still are, and have long been recognized as efficient sources of heat and working energy.

Nearly all common edible fats are known to be highly digestible and many are of added value as carriers of fat-soluble vitamins; they add greatly to the flavor value and desired physical properties of many important foods; they contribute favorably to the immediate "satiety value" of many foods and to the "staying power" of foods between normal meal times; they are established in the food preparation patterns of nearly all individuals and industrial groups; certain fatty acids, either linoleic or others closely related in structure, are now generally accepted as "essential nutrients" in man and in many animals.

There is substantial evidence that a caloric intake from fats is optimal when in a range of thirty to forty per cent of total calories.

Upper limits for optimal health and efficiency are not well established for persons whose diets are adjusted to actual caloric needs and are well balanced with respect to all other nutrients. This is an area where the assumptions run ahead of the facts.

Eskimos and others whose foods have been chiefly meat or fish, apparently have adjusted well to diets very high in fat content through thousands of years, but vital statistics for such groups are relatively inadequate.

Those who relied upon venison, buffalo meat, caribou and sheep consumed chiefly solid fats. At the other extreme, millions of people in tropic and sub-tropic areas have adjusted similarly to diets with less than 20 per cent of calories as fats — but their health records have been generally unfavorable unless a source of good quality protein was furnished.

Polyunsaturated fats (specifically those with a high content of fatty acids, having two or more normally positioned double bonds) have a tendency to become rancid

WILL THE RUSH TO POLY-UNSATURATED OILS COST YOU SALES?

Consumers are becoming highly conscious of the benefits of poly-unsaturated fats in the foods they eat.

This is no food fad. It's a definite, established trend: one that's based on sound health reasons . . . one that's just beginning to make its impact felt.

CHECK SAFFLOWER OIL NOW!

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Now is the time to consider the advantages you get from PVO Safflower Oil — the versatile oil with a higher poly-unsaturated content than any other vegetable oil available.

Check these advantages:

- ✓ **76.5% Linoleic Poly-Unsaturates (Only 10.5% Saturates)**
- ✓ **A Ratio of 7.6 to 1—Poly-Unsaturates to Saturates**
- ✓ **Bland Flavor**
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Write today — or contact your PVO broker — for all the information on Safflower Oil by PVO process.

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Perhaps we can do the same for you . . Please write.

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as a result of oxidation on exposure to the air. This imposes a technical hazard to their use in food products intended for long storage.

The use of antioxidants, refrigeration, packaging in a manner to exclude air, hydrogenation to increase melting points and saturate the reactive double bonds, and other similar measures have served to stabilize fats and thus increase their usefulness for consumers.

Excessive heating or oxidation of polyunsatured fats tend to lower their nutritive value by polymerization, causes poor assimilation or hydroxylation, which may cause irritation. Thus far, risks of this nature apparently have been reasonably well controlled.

The biological value of fatty acids formed during hydrogenation are being studied intensively but appreciable health risks on this score have not been established. The changed delta- positions and trans- isomers, however, are of continuing interest. They tend to be formed in parallel with a rise in melting point and a decreased content of linoleic and linolenic acids. In moderate quantities they apparently can be oxidized and disposed of normally, but the tolerance range for such isomers has not been well explored.

The evidence in support of accepting linoleic acid or certain equivalent and structurally related acids as important nutrients in well balanced human diets is substantial. It is based in part on human infant studies, indicating that glycerides of these acids induce a favorable effect on growth, food utilization, skin conditions and serum fatty acid balances in occasional children after long periods of feeding fats (cow's milk) that are relatively saturated. These occasional benefits to infants result also from feeding human milk which normally furnishes two to three times more linoleic acid.

In "deficient" infants, the pattern of changes in blood fatty acids are comparable to changes observed in "essential" fatty acid deficient experimental animals and adults. The pattern is characterized, for example, by a decreased content of linoleic acid and an increased concentration of a 3-delta, C_{20} fatty acid that apparently is derived from oleic acid or by the action of synthesizing enzymes that omit the pattern of double bonds found in the "essential" linoleic and arachidonic acids.

Analysis of the fatty acids in human milk fat from mothers on controlled diets demonstrated that the content of linoleic acid was dependent upon the quantity furnished in the mother's diet. Apparently nearly all mothers on typical mixed diets studied thus

far have received adequate quantities of linoleic acid for their own fat reserves and for normal lactation.

Extensive observations from human and animal experiments are in general agreement that edible fats and oils with a moderate or high content of linoleic acid glycerides tend to induce lower serum cholesterol values than comparable quantities of fats containing saturated fatty acids or oleic acid as glycerides.

In many controlled studies with experimental animals, there has been a general correlation between dietary regimens that are low in "essential" fatty acid glycerides and diets that induce high concentrations of serum cholesterol, high total fat and characteristic patterns of free fatty acids.

It is also true that many experimental diet patterns not based solely on different intakes of fatty acids, have been shown to induce severe and moderate degrees of atherosclerosis or "hardening of the arteries." Among these, for example, are low intakes of choline or methionine or vitamin B_6 or magnesium, and high intakes of calcium, phosphate, moderate intakes of bile salts, large quantities of cholesterol and excess intakes of calories.

Genetic trend, high blood pressure, degree of exercise, hormone balances and regulation of blood clots are also factors of recognized major importance.

In nearly all of these instances, the degree of injury is increased by an excess intake of total calories. The fact that fats furnish 2¼ times more calories than carbohydrates and proteins per unit weight calls for special consideration with respect to controlling calories.

In nearly all surveys of the incidence of coronary heart disease and related breaks in health, serum cholesterol concentrations have shown only a low degree of correlation, even though generally reported as "significant."

Other significant correlations include genetic trend, high blood pressure, cigarette smoking, excess body fat (excessive caloric intake) deficient exercise and hormone imbalance as in diabetic patients.

Running through most of the survey records and experimental tests, there is no satisfactory way to evaluate what the effect of other factors would have been if the total intake of calories had been held to an ideal level. Our average adult, for example, is about 15 pounds above his ideal weight, and most experimental animals are fed ad lib, with very little chance for exercise.

Widespread doubt still exists among leading research scientists

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who have had extensive experience in this area of clinical and experimental animal research, whether moderate changes in serum cholesterol through the time periods generally observed, furnish a reliable or satisfactory index of diet patterns that would lessen the severity of coronary heart disease, atherosclerosis and related breaks in health.

In the physician's advice to individual patients, there is complete freedom to counsel on the basis of opinion and personal evaluation.

However, with respect to advice to the general public, to food distributors, to leaders in industry, to agriculturalists and to regulatory agencies, such responsible groups of scientists as the Food and Nutrition Board of the National Research Council, the Council on Foods and Nutrition of the American Medical Association, representatives of the American Heart Institute and numerous leading pathologists working on the problem are not convinced that there is a causal relationship between either serum cholesterol measurements or fatty acid intake and atherosclerosis and heart attacks.

Research is progressing rapidly and there is reason to feel confident that satisfactory answers to such questions as indicated above will be steadily forthcoming.

Meanwhile, current concepts of well balanced, safe and healthful diets need not be changed radically. They are based on extensive experience as well as research and can be modified readily in detailed respects, to meet new evidence.

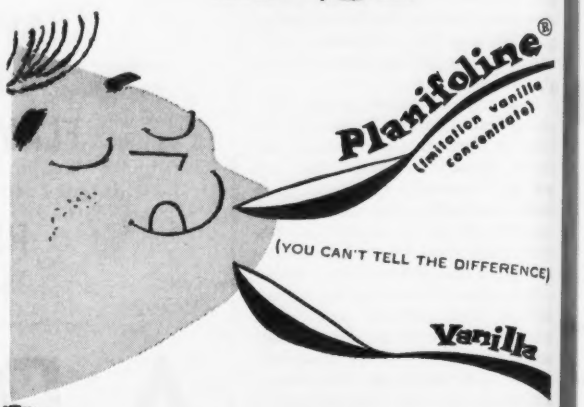
Individuals find it desirable to adopt special measures to meet their own genetic pattern and special circumstances, under reliable professional guidance — but not on the basis of superficial impressions gathered from non-authoritative sources.

Two kinds of needless and harmful fear currently are widespread as a result of misunderstanding or distorted statements about cholesterol and animal fats, respectively.

Cholesterol, in many different combinations is a normal and essential constituent of each cell of the human body and of most animal bodies. The body forms cholesterol in required quantities normally from the common sugars and fats in the diet, and in turn regulates its functions in forming other products. The major end products excreted from the body are the bile salts, secreted by the liver into the intestinal tract.

Small amounts of cholesterol in foods are normally kept in balance with the quantities formed and excreted. Hence there is no reason to be fearful of nominal amounts of cholesterol in fats that accompany reasonable quantities of the

Make the vanilla TASTE TEST



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needed animal protein foods such as meat, milk, eggs, poultry and fish. Excesses should be avoided, of course.

Fish constitute an excellent source of fatty acids equivalent to linoleic acid glycerides; poultry fat is a good source; and pork fat is a fairly good source — actually it is the source used originally in discovering the special value of linoleic acid types of fat. Most other animal fats contain only small amounts of linoleic or arachidonic acid. Many vegetables and fruits contribute appreciable quantities of these acids and nearly all commonly used nuts are very rich sources of linoleic or equivalent fatty acids.

Other potential sources of increased linoleic acid, (whether or not they are needed) are the salad and shortening oils from corn, cotton seed, soybeans, peanuts, safflower, sesame, and sunflower seed. Coconut oil and cocoa fat, in contrast, are very saturated. Olive and palm oils are generally high in oleic acid and very low in linoleic acid.

Margarine fats and solid shortenings generally contain an appreciable amount of linoleic acid and they can be produced with a very high content of linoleic acid if desired as optional products. However, their content of fatty acids requires careful appraisal, to avoid errors in statement or by implication, in claiming values for the isomeric forms that are not equivalent to the initial cis- forms.

There is good reason to be confident that research will steadily furnish enough information to serve as practical guides for changes in our diet pattern that may be desired on the basis of satisfactory evidence. Interim changes of a radical or fear-induced nature, however, are likely to do more harm than good.

A poorly informed public is shockingly susceptible to new and exciting claims that lead to extremes in practice and duplicity in the wake of faddists and alarmists. Trends of this nature are harmful, both for the public and for those who furnish safe, high quality foods to the public.

For these reasons, we heartily and gratefully endorse the leadership of Mr. Mortimer, Chairman of the General Foods Corporation and President of the Nutrition Foundation, and others of like mind in the food and related industries who see the need for a much more effective program of furnishing reliable, practical information pertaining to food practices, to all segments of the public.

Educational action of this nature is needed on the basis of good citizenship, sound economic investment and improved public health.

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Once considered merely a supplement to conveyors or larger rider-type industrial trucks, and used only for specialized jobs, the formerly humble walkie powered industrial trucks have come of age.

Today their use encompasses nearly every type of handling within plant or warehouse. In fact, many firms are centering their entire handling program around these versatile units.

With ever-growing responsibility being placed on these diminutive workhorses, it is important that users and potential users fully understand the . . .

Advantages and lir

PAUL SCHRECK, Vice President, The Moto-Truc Company

Our approach is first to determine the basic type of handling system to be employed, and then to select the most efficient type of walkie truck to implement the system.

Table on opposite page lists the basic types, their application, design and advantages and/or limitations. In addition to these specific characteristics of the basic truck types, here are nine basic factors that should be considered before deciding on which type of walkie best suits individual handling needs.

Cost. Walkie trucks cost considerably less than their counterparts of the standard rider-type machine. Although actual cost comparisons vary with individual models, it is generally true that walkies average 30 per cent less than standard rider models. Batteries and charging equipment prices compare at about the same ratio. (This difference is due to reduced size rather than lack of ruggedness or to cheap construction.)

Walkies also compare favorably with the cost of other types of powered mechanical handling devices such as overhead cranes, tramrails or powered conveyors. Where flexibility if a factor, walkies provide the maximum in handling efficiency.

Comparing prices of standard walkie trucks of equal handling capacity you will find they fall into the following ranges:

TRUCK TYPE	APPROX. PRICE RANGE*
Pallet, low lift	$1500
Load carrier	1250
Low lift platform	1500
High lift	2800
Outrigger	2800
Fork	3000
Tractor	1100-1500

*Based on a standard Walkie model with 3000-4000 lb capacity

Load capacity. Standard Walkie models range in capacity from 1000 lb to 6000 lb, although models with capacities as high as 16,000 are commonly built. Truck capacity is seldom a deterrent to selection of a walkie. Of course, as capacity increases, over-all size also will increase.

Weight. One of the outstanding advantages of a walkie is its low weight-to-capacity ratio. A typical pallet truck capable of handling a 6000-lb load will weigh less than 1500 lb, while a standard rider-type fork truck of equal capacity will weigh upwards of 6500 lb.

A walkie fork truck will, however, weigh almost half as much as its rider counterpart. The outrigger model will weigh about 30 per cent of a standard rider fork truck.

This weight advantage is important in older plants where floor capacities are limited. It is also an advantage on elevators, and in street trucks and freight cars where floor strength is questionable.

Maneuverability. Aside from cost, maneuverability and the ability to operate in narrow aisles and confined spaces is perhaps the major advantage of all walkie trucks.

Many models can right-angle stack from aisles that are only 25 or 30 in. wider than the length of the load. Thus, stacking from six-ft aisles is readily attainable.

Because there is no problem in working out steering linkages, as is the case on rider-type trucks, the angle of steer frequently exceeds 180 deg. This means that the theoretical turning radius of a walkie may be no larger than the length of the truck. This maneuverability can be an important advantage on operations in freight cars, elevators, street trucks and similar confined areas.

Operator position. In addition to the standard lead-around or walkie type truck, most models are available in what are commonly termed small rider models. In actuality, these are mod-

text continued on page 46

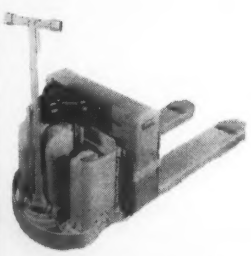
Truck Type:	low lift pl
Application:	Handle loa
Handling Method:	Forks with … neath forw… nserted … Load is ra… nches off… moving.
Advantages and Limitations:	Designed f… n confined… reas with … apacity. Fo… moves only… ermit stack…

Fork truck

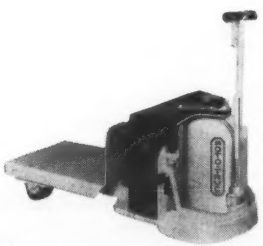
...and limitations of walkie trucks

BASIC TYPES OF WALKIE INDUSTRIAL TRUCKS

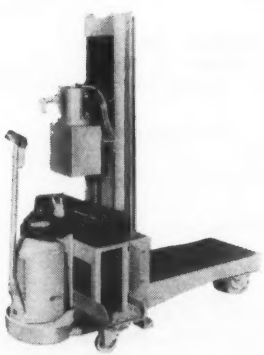
...ck Type:	Low lift platform	Load Carrier	Low Lift Platform	High Lift Platform	Outrigger Straddle	Fork Truck	Tractor
...lication:	Handle loads on pallets	For load transfer.	Handles loads on skids.	Permits tiering loads on skids.	For tiering loads on pallets or skids.	For handling all types of loads, pallets, skids, etc.	For pulling loads on trailers.
...Method:	Forks with wheels beneath forward end are inserted under load. Load is raised several inches off floor for moving.	A simple non-elevating platform truck.	Elevating platform is inserted beneath load. Load is raised several inches off floor for horizontal movement.	Platform elevates on vertical uprights. Wheels beneath platform provide load support.	Outriggers in front of truck equipped with wheels at forward end. Two types: one with forks nesting in top surface of outriggers; other with forks lowering in space between outriggers.	Operates on counterbalanced principle, with load carried cantilever fashion in front of truck. Thin forks inserted under load. Truck designed for stacking.	Many types for pulling trailers. Also with attachments for lifting end of semi-live skids. Some permit moving trailers without use of couplings.
...ages and ...itations:	Designed for handling in confined areas or areas with limited floor capacity. For horizontal moves only. Will not permit stacking.	This truck does not have self-loading feature. Must be loaded by hand, with crane or another truck. It's simple, low cost and ideal for handling bulky or non-unitized loads.	Requires seven in. minimum under-clearance beneath load for platform entry. For horizontal movement only. Will not stack. For confined areas and light-capacity floors.	Requires seven in. minimum under-clearance when picking up load. Also floor clearance for front wheels when stacking. Ideal for stacking extra long loads and bulky objects. High stacking stability due to forward support.	Short turning radius for stacking in narrow aisles. Excellent stability. Nesting forks for single-faced pallets and skids. Forks between outriggers for wing or double-faced pallets. With either, space needed beneath or between stacked pallets for outrigger entry.	Truck relatively heavy for load capacity. Most versatile of walkies. Can be equipped with variety of attachments for handling specialized loads. Provides most flexible method of tiering loads in storage.	Provides most efficient means of moving volume of material over relatively long distances. Trailer can be loaded or unloaded with other types of trucks.



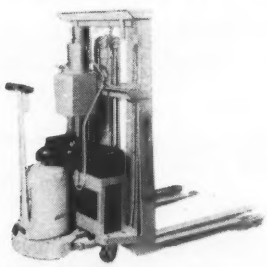
Low-lift pallet (Load carrier)



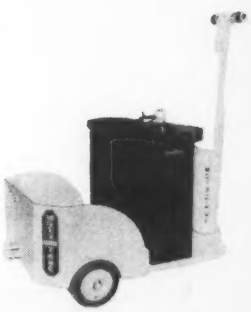
Low-lift platform



High-lift platform



Outrigger straddle



Tractor

ifications of walkies and operate in narrow aisles and confined areas with equal facility.

On operations where long hauls, slippery floors or other working conditions necessitate the use of rider-type trucks, it is possible to gain much of the advantage of walkies by using small riders.

The cost of small riders is generally greater than comparable walkies; likewise their weight is greater.

Power requirements. All walkie trucks are designed for electric operation, and most use electric storage batteries. Although not normally recommended due to space considerations, some walkies may be equipped with gas-electric generating units.

Trucks are designed for operation on 12, 16, 18 or 24 volts, with ampere hour capacities ranging from 250 to 800. The batteries used are generally of the standard industrial type, and no difficulty is experienced in obtaining batteries which will provide at least a full eight hours of operation between charges, even on the toughest handling jobs.

Travel speeds. Obviously the speed of walkies is limited principally by the walking speed of the average worker. This speed ranges from 2 to 3½ mph. On small rider trucks, the travel speed will range up to 5 mph, empty.

Maintenance. Due to their simplicity, most walkie trucks are easy to maintain. Small size and fewer moving parts reduce both maintenance cost and the down-time caused by failures.

Some models, which employ small load-carrying wheels on outriggers or on pallet forks, presented a difficult wheel wear problem. However, this aggravated wear has been partially solved through the use of special rubber and plastic compounds.

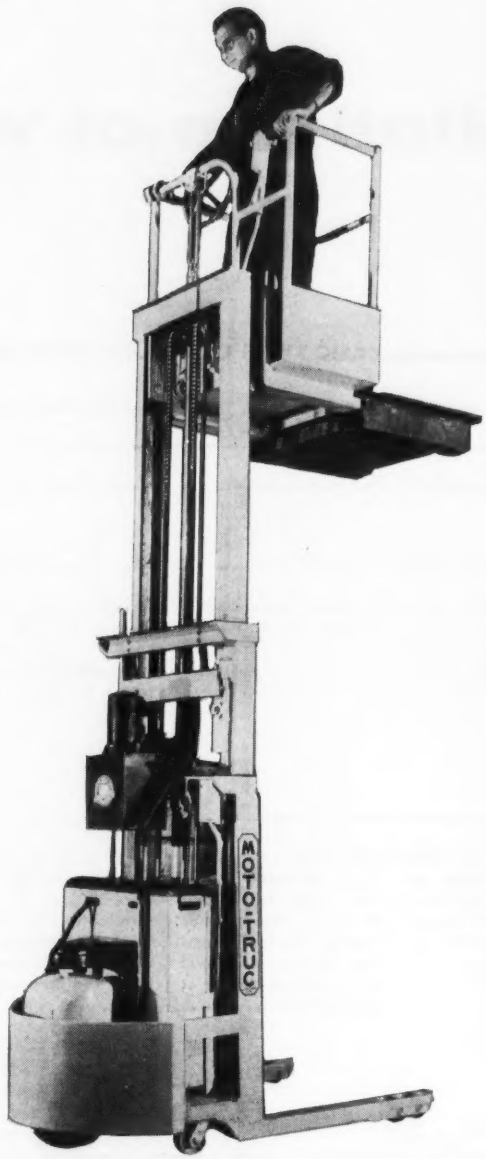
Special handling problems. In addition to the many standard truck models previously discussed, there are a host of attachments which will add to the versatility of the standard models. In many cases these will provide added handling efficiency.

Typical examples include skid adapter for pallet trucks which permit handling pallets and skids interchangeably; attachments for fork trucks including paper roll clamps, drum clamps, carton clamps, booms, rotating forks and many others.

Outrigger trucks may be equipped with remote controls to permit the operator to ride up with the load.

The problem of picking the best truck for the job is, obviously, not so simple that any pat set of rules can be established to apply in every case. Experienced judgment, plus careful study of the problem will go a long way toward an efficient system.

Likewise, the experience and know-how of the various truck manufacturers or their representatives can be of invaluable aid in selecting the proper truck. END



Outrigger trucks may be equipped with remote controls to permit the operator to ride up with the load

EDITOR'S NOTE: As the author mentions, the walkie truck types described in table on preceding page are basic types — all of which are made by The Moto-Truc Company, 1954 E. 59th St., Cleveland 3, Ohio. 7743 on Reader Service Slip. Other companies which manufacture some or all of these basic walkie truck models are:

Automatic Transportation Co., Div. of The Yale & Towne Manufacturing Co., 149 W. 87th St., Chicago 20, Ill.
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Barrett-Cravens Co., 630 Dundee Rd., Northbrook, Ill.
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Clark Equipment Co., Industrial Truck Div., 1921 Escote St., Battle Creek, Mich.
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Economy Engineering Co., 4523 W. Lake St., Chicago 24, Ill.
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Lewis-Shepard Products Co., Inc., 125 Walnut St., Watertown 72, Mass.
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Lift Trucks, Inc., 2431 Spring Grove Ave., Cincinnati, Ohio
7541 on Reader Service Slip.

The Raymond Corp., 131 Madison St., Greene, N.Y.
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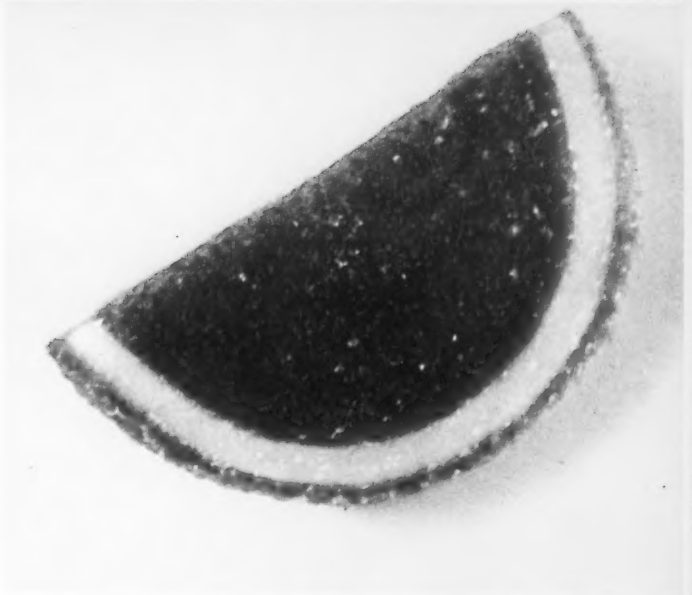

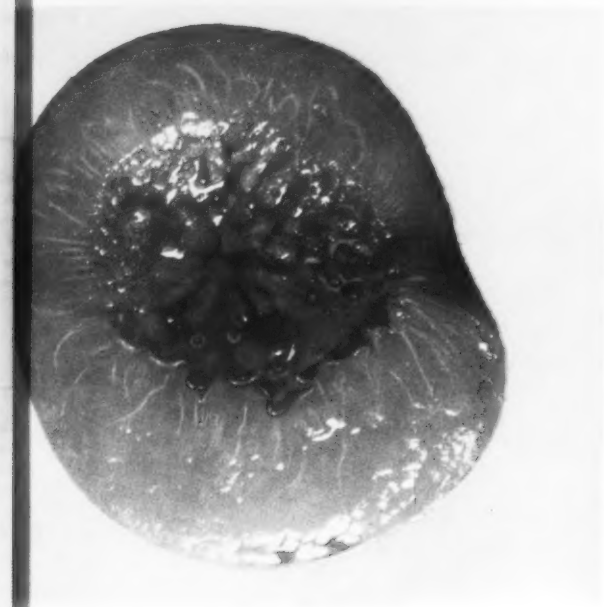

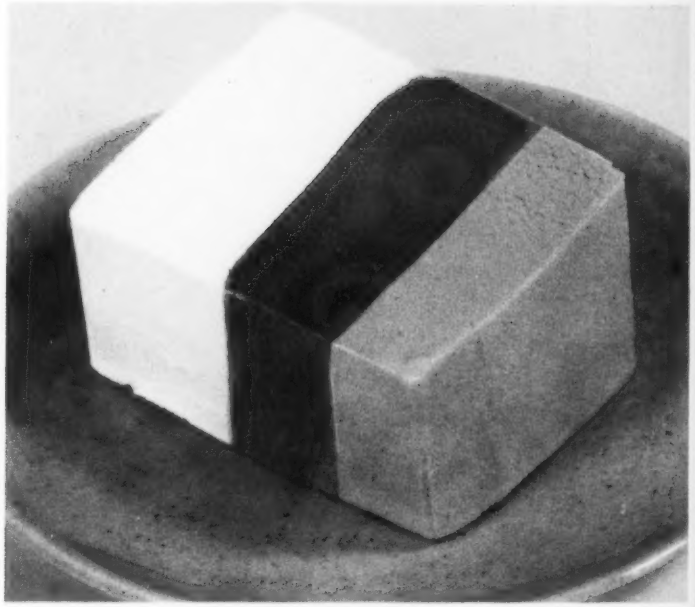

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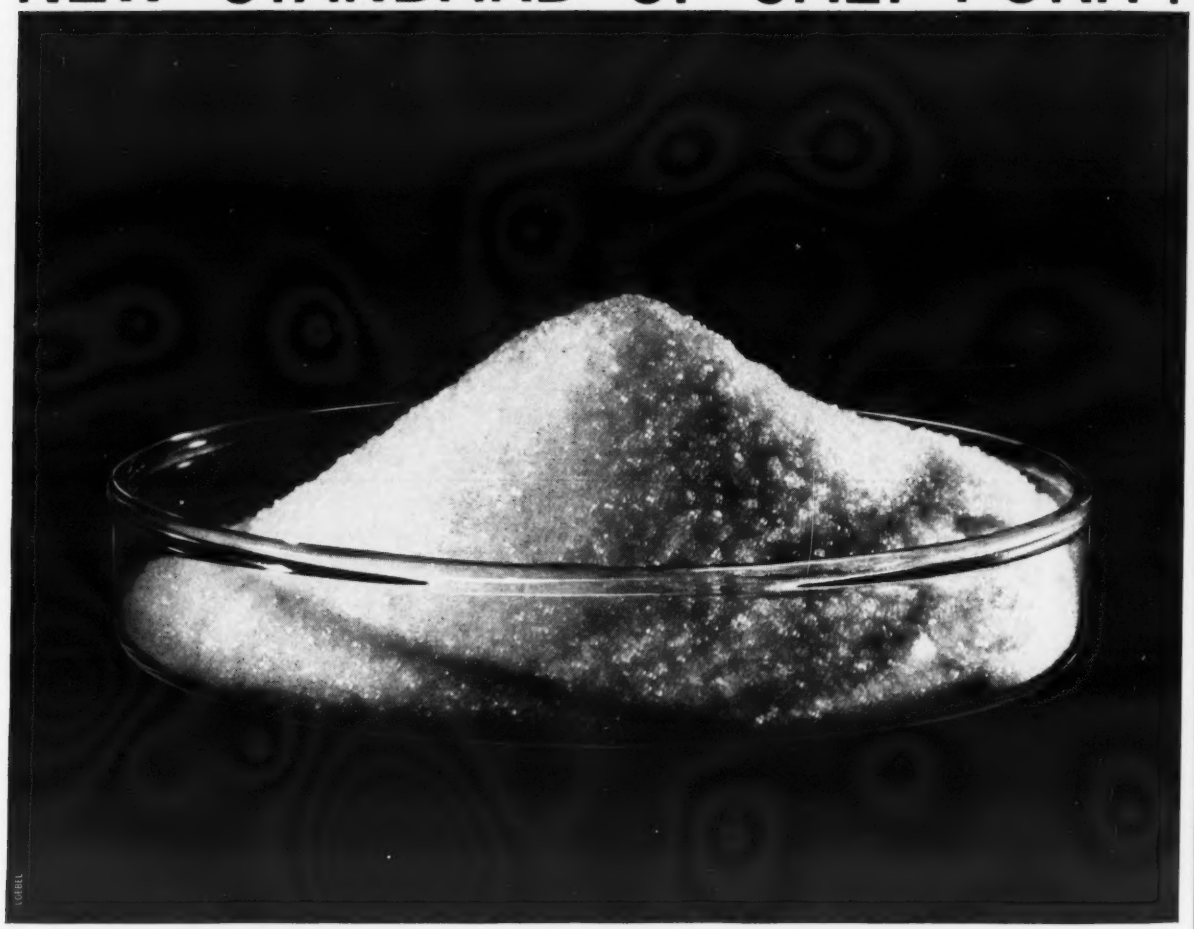

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plants, companies, personalities,

United States Testing Co.

Hoboken, N.J., has formed a Food Division to provide broad and complete testing, research and development, analysis and product evaluation services for the food, beverage and confection industries. Dr. Dean Foster has been promoted to manager of the new division.

Armour and Company

has promoted P. J. Di Rocco to manager of the company's dry sausage department.

Beatrice Foods Co.

Chicago, has acquired Mitchell Syrup and Preserve Co., Detroit, manufacturer of Ruby Bee preserves and jellies and Dainty Lunch jellies. The company will operate as a separate division.

Gerber Products Company

Fremont, Mich., has acquired Knoll and Co., Three Oaks, Mich. Formerly a Gerber supplier, the facility will continue to produce the recently introduced line of Gerber baby pants for the parent firm.

Roman Meal Company

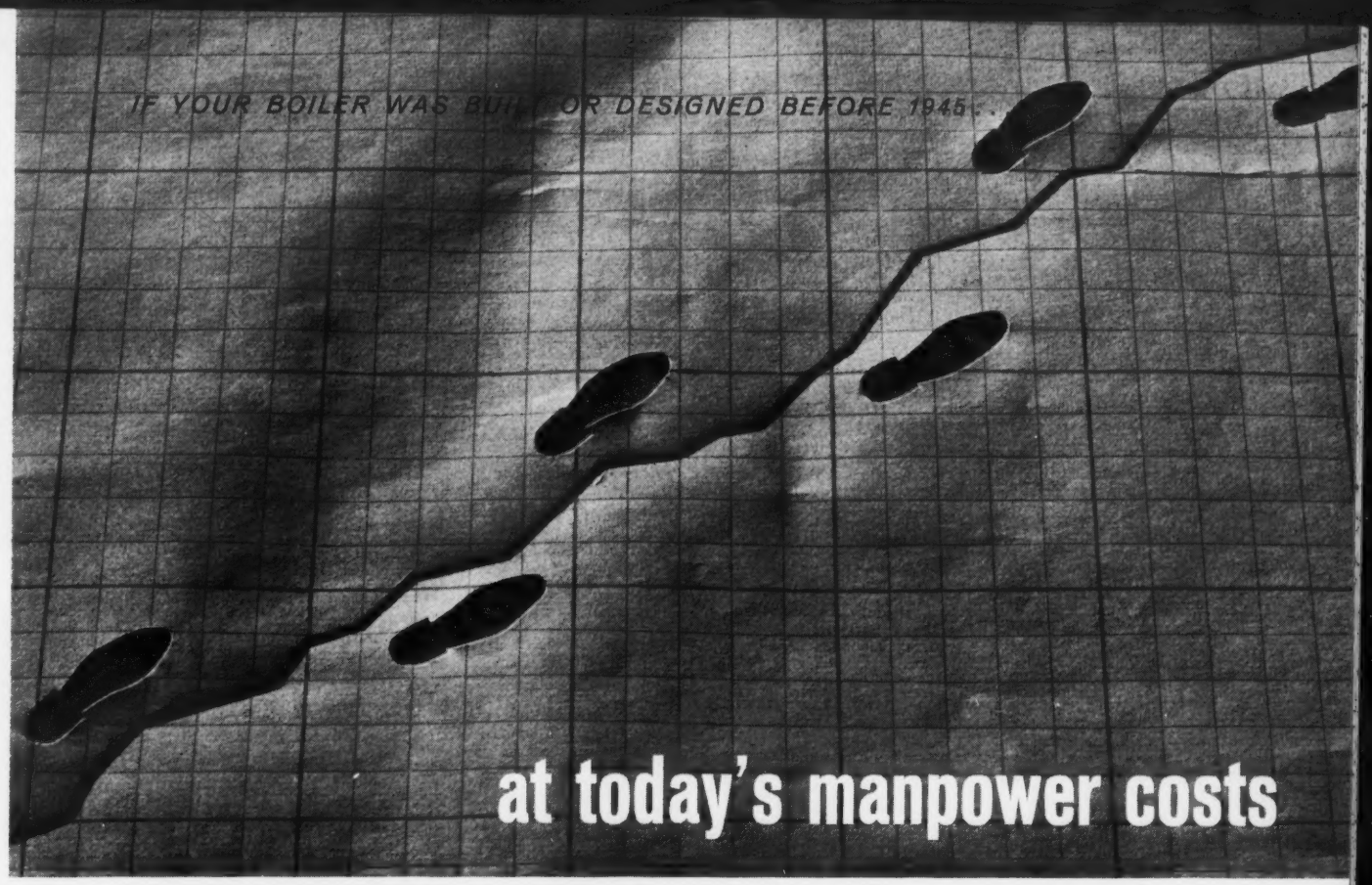
Tacoma, Wash., has appointed as director of the Dept. of Research, Product Development and Quality Control Homer Elling, who formerly headed baking ingredient research at Wichita Foundation of Industrial Research connected with Wichita University.

American Molasses Co.

has acquired Lanco Products Corp., and its wholly owned subsidiary, American Breddo Corp. — both leading suppliers of ingredients for the baking, ice cream and dairy industries. The new acquisitions will be operated as wholly owned subsidiaries.

Dairyland Food Laboratories, Inc.

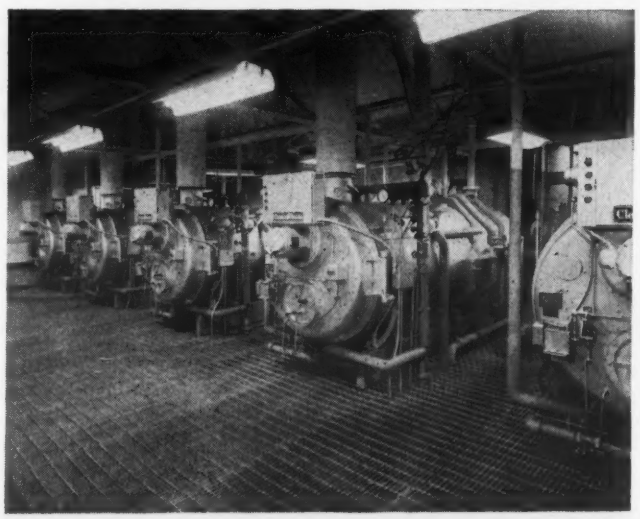
Waukesha, Wis., has appointed Robert L. Schwarberg research chemist. He will work under direction of Dr. John Nelson, director of research.



you may be paying for it a second time!

$15,000-A-YEAR LABOR SAVINGS

Diebold, Inc., Canton, Ohio, century-old manufacturer of bank protection and office equipment, replaced old, coal-fired boilers with new, fully automatic, gas-fired CB boilers and saved $15,000 to $18,000 in annual manpower cost. *All five of these new boilers are operated by just one man* — other personnel have been transferred to more productive work assignments. Bill Roby, assistant plant engineer, speaks highly of the ease of installation and the compact design.



New or old, there's one thing about any boiler that's up-to-date: you have to pay today's wages for the men who tend it. This becomes out-of-line overhead if you're operating a boiler designed in the days when man-hours were far less costly.

As wages have doubled during the past two decades, one manufacturer, Cleaver-Brooks, has pioneered in making a boiler that requires fewer man-hours to operate. Today's CB packaged boilers provide a combination of labor-saving design features and performance standards that cannot be found in any other boiler — at any price.

Hinged doors, front and rear, provide for quick cleaning of the tubes. It takes only 40 seconds to remove and replace the retractable burner nozzle. Fully automatic, these boilers include electronic safety devices which release the operator for other duties. And, because some jobs require quick changeover from one fuel to another, Cleaver-Brooks boilers are designed to make this change in less than a minute.

All this is provided by Cleaver-Brooks in the most compact, fuel-saving packaged unit on the market. Sizes through 600 hp . . . oil, gas and combination oil-gas firing . . . larger sizes in Cleaver-Brooks Springfield water-tube boilers. All models completely pre-engineered and tested as a package . . . expertly started for you by a trained field engineer.

Your local Cleaver-Brooks agent can supply more details. Ask him, or write for the booklet, *How to Select a Boiler.*

Cleaver Brooks®

ORIGINATOR AND LARGEST PRODUCER OF PACKAGED BOILERS

CLEAVER-BROOKS COMPANY

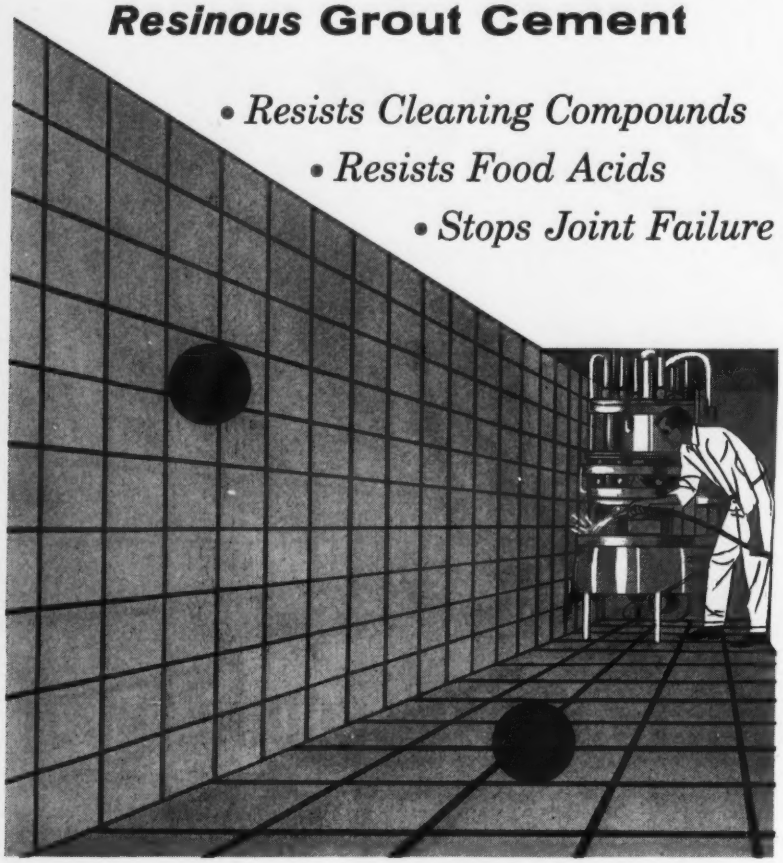
Dept. B, 357 E. Keefe Ave., Milwaukee 12, Wisconsin

7546 on Reader Service Slip.

Ends your floor and wall tile problems...

Nukem **Supertite**

***Resinous* Grout Cement**



Supertite is a resinous grout cement and unlike ordinary cementitious material, is absolutely immune to the corrosive effects of food acids, sugars and syrups. It will not deteriorate with age, it eliminates joint failure in walls and floors.

Supertite Grout Cement gives your tile walls and floors *complete* resistance to attack by food acids, cleaning solutions, organic chemicals and water.

Supertite is a mortar type acid-alkali resistant grout cement that sets quickly and "welds" brick, tile and glass block together. It has great impact resistance and a high degree of flexibility...sets quickly and bonds permanently, yet is exceptionally easy to clean.

Supertite adds years of service to both new and old floors and eliminates contamination problems.

For information and illustrated technical data, write:

Amercoat® CORPORATION

131

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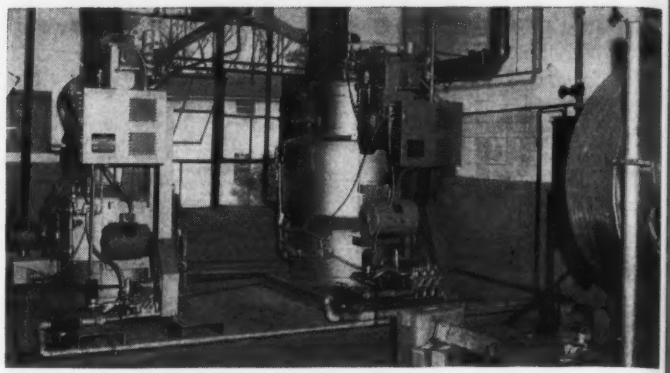

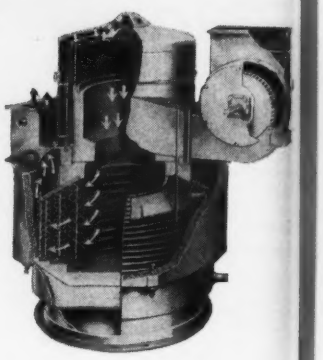

Above, photo of the Traverse City boiler room shows the oil boiler in right foreground, 100 hp boiler at left and 150 hp boiler in the center. Notice compact size of boilers which makes mobility possible. At right is a cross-section drawing of a Vapor Cycle Modulatic water tube boiler. Combustion gasses are forced through the tube bundle at high velocity so as to obtain a high rate of heat transfer. Consequently less heating surface is required for a given boiler horsepower rating resulting in a compact boiler with 80 per cent efficiency. Boiler was designed and built by the Vapor Heating Corporation, 80 E. Jackson Blvd., Chicago 4, Illinois
7744 on Reader Service Slip.

Traverse City cherry packer solves seasonal problem

Leases boilers for a few weeks each year

FP STAFF

THE Traverse City Canning Company, a cherry processor at Traverse City, Michigan has solved a seasonal steam shortage problem by leasing boilers for temporary use.

Processing volume has increased steadily through the years. Now three to four thousand tons of cherries are received during the few short weeks of harvest and a major per cent of these are canned.

The oilfired package boiler could handle steam requirements most of the year. However a tremendous surge of demand during the canning season placed an impossible load on this equipment. Two hand fired HRT boilers had been condemned and junked. The old boiler room was converted to a brightly lighted equipment maintenance shop.

Engineers calculated that 250 horsepower of steam capacity would be needed to supply processing requirements, which had previously been furnished by the HRT boilers.

Rather than tie-up money in equipment to be used only a few weeks each year, Lewis Walton, President of the can-company, negotiated a lease from the W. R. Bradley Co. of 6918 Greenfield Road, Detroit, Michigan.

The Bradley Company bought two steam generators having 100 hp and 150 hp capacities from the Vapor Heating Company. Compact construction makes them suited for mobile application. (see photo)

They were mounted on steel skids and equipped with hoisting hooks so that they could be handled more easily in transport. The 100 hp boiler weighs 4500 pounds and the 150 hp boiler weighs 6000 pounds.

The men who faced a familiar processor's peak-load problem and found a solution: left to right are James Lyman, Superintendent; Lewis Walton, Pres.; and Edward Bradford, Assistant Superintendent

These were delivered to Traverse City by June 1, 1960 and installed with provisions for easy disconnect from permanent pipe lines and service.

After the boilers had served their purpose, temporary connections were removed and the boilers were ready for shipment to another job. In this case a grape juice plant at Paw Paw, Michigan was the next user. Next June the equipment will be back at Traverse City ready for use during the heavy demand period. END

Special opportunities for you in the Classified Advertising section, page 124.

STOP YOUR LOSSES AT THEIR SOURCE!

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MORE accurate

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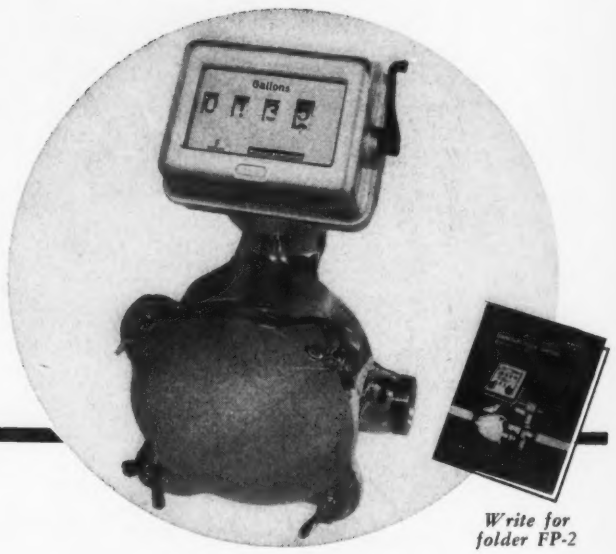

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SIEMENS

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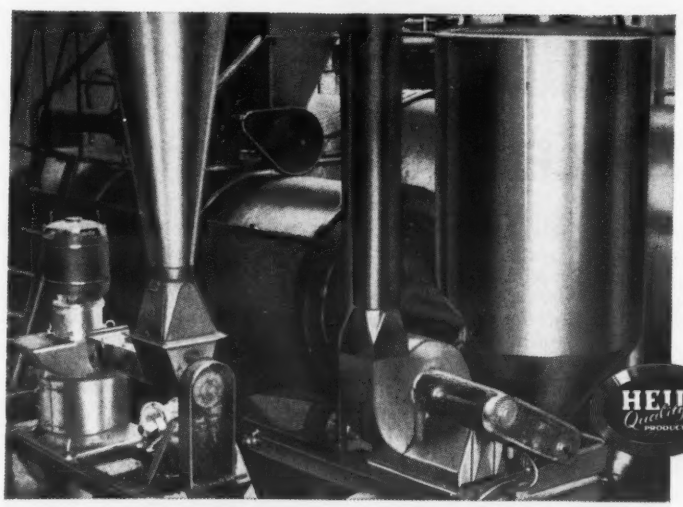
HEIL DRYERS

convert waste disposal problem into profit-making by-product



San Jose Canning Co., San Jose, Calif., uses a Heil dryer to reduce moisture content of tomato pomace from 50 to 7 percent. With additional processing it is sacked and sold to animal feed packers. Production is around 6½ tons in a 20-hour shift. Result: hauling costs are down two-thirds and San Jose earns an income from material that once cost money just to be thrown away.

A Heil dryer dries materials on a stream of hot air, with each particle correctly exposed in proportion to its moisture content. Result is quick, uniform drying. The Heil unit is compact, too, with three drying cylinders within a single drum. Write for all the facts on Heil dryers . . . capacities range from models to evaporate 500 lb up to 36,000 lb of water per hour.

THE HEIL CO.

Manufacturers of the Arnold Dryer

Milwaukee, Wisconsin

Photo courtesy of Canner/Packer Magazine

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*As fresh as Givaudan's new flavor**

*IMITATION PINEAPPLE FLAVOR F-1213!

We suggest, in all due modesty, that you will be surprised at the fidelity with which fresh natural pineapple matches the flavor of this new Givaudan creation.

We feel justified in making this turnabout comparison because the flavor of Imitation Pineapple Flavor F-1213 and that of the fresh fruit are virtually identical.

There are many pineapple flavors that resemble the canned type, but this new Givaudan product has the true sweetness, freshness and bouquet of the natural pineapple itself.

Imitation Pineapple Flavor F-1213 is the result of long and persevering efforts on the part of our flavor chemists—a creation which we are proud to add to our widely known line. Its concentration and stability make it ideal for those products in which a fresh pineapple flavor is desired at a minimum cost. Its powdered counterpart, *Permaseal® Imitation Pineaple Flavor F-2749,* is also a faithful reproduction of the fresh fruit flavor May we send you samples and further information?

Givaudan Flavors Inc.

321 West 44th Street, New York 36, N. Y.

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Latest technology for wine makers

"The technology of Wine Making" is in many respects a third edition of "The Principles and Practises of Wine Making." However, the text has been changed so much that the authors, Dr. M. A. Amerine and Dr. W. V. Cruess, concluded that a new title would be appropriate.

The 709 page reference with 148 illustrations, discusses the complete scope of wine making. Volume opens with a comprehensive coverage of wine regions of the world and many of the traditions associated with the major producing regions.

Other sections include technical presentations about the fermentation and chemistry of wine making. Production technology of red and white table wines is extensively covered. Other classifications included are sherry, sparkling wines and flavored wines.

Spoilage problems and solutions are classified into bacterial and nonbacterial considerations. Brandy production is briefly discussed. A chapter on winery byproducts may be of interest to processors who are interested in more effective use of their facilities.

Each chapter includes a complete bibliography which can be used for reference to sources of more detailed information.

Publisher: The AVI Publishing Co., Inc., P. O. Box 388, Westport, Conn. Price is $19.00 per copy domestic or $20.00 foreign.

Horsepower ratings of roller chains

Proposed new horsepower ratings have been published in a 12 page booklet titled, "Horsepower Ratings of American Standard Roller Chains."

These new ratings may aid processors in gaining improved performance, longer life and more horsepower transmission from chain driven equipment.

Copies are available from the Association of Roller and Silent Chain Manufacturers, 1343 Central Avenue, Indianapolis 5, Indiana. Price, $1.00 per copy.

plants, companies, personalities,

The Griffith Laboratories, Inc.

Chicago, has purchased Relco Specialties, Inc., Union, N. J., manufacturer of bakery specialties — including such products as macaroon crunch, coconut sprinklets, chocolate sprinklets, flavors and emulsions, cake bases and pie fillings.

Green Giant Company

Le Sueur, Minn., has purchased the majority of the outside stock interests in Green Giant of Canada, Ltd. As result, the latter will change its operating status from an affiliate to that of a subsidiary of the Le Sueur firm.

Shenandoah Valley Apple Corporation

is new name for the Winchester, Va., apple processing firm formerly known as Shenandoah Valley Apple Cider and Vinegar Corp.

Lawry's Foods, Inc.

Los Angeles, has commenced construction of a $1 million, 22,000 sq-ft International Administrative Center, adjacent to the company's existing offices, production plant and warehouses at 568 San Fernando Rd. Among facilities to be available will be one of the most modern quality control laboratories in the food industry and four test kitchens, including an institutional model.

Seeley & Co., Inc.

Nyack, N.Y., manufacturers of true fruits, essential oils and basic flavoring materials, have appointed as vice presidents Louis Pais and Eugene Sturman — both formerly with Polak's Frutal Works, Inc., Middletown, N. Y.

For more information on product at right, circle 7551 see information request blank opposite last page.

Hertz Customer—Plymouth Rock Provision Company, Inc., Bronx, New York

HERTZ gets you out of the Truck Business ...and back into the Food Business!

Every hour spent on truck problems and administrative details is an hour *better* spent in promoting your own business. This is why more and more companies today are switching to Hertz Truck Lease Service!

Hertz pays cash for your present trucks. Then you take your choice of new GMC, Chevrolet or other famous make trucks. Or your own trucks can be reconditioned and leased back to you. Instead of many separate bills, you pay just one check per week —and that covers everything except the driver.

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The service is *flexible*—trucks are custom-engineered, for example, to suit any kind of business. Should a truck be tied up for repairs, Hertz supplies a replacement. Or if extra trucks are needed, for peak periods, Hertz supplies them immediately. Get out of the truck business today! Call your local Hertz Truck Lease office for more information or write for booklet—"How to Get Out of the Truck Business."

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Pregelatinized Corn Flour

Improves Texture and Extends Shelf Life of Many Bakery Products

Offers use as an excellent binder and dough conditioner in coffee cakes, sweet rolls and cookies

W. L. VOLLINK
Manager, Corn Laboratories
General Foods Corporation

Table 1 — Water Absorption Tests

	100% Flour	95% Flour 5% Potato Flour	90% Flour 10% Potato Flour	95% Flour 5% Pregelatinized Corn Flour	90% Flour 10% Pregelatinized Corn Flour
lbs of water absorbed per 100 lbs material	58.6	61.0	60.7	61.2	63.5
Absorption by Wheat Flour in test material (lbs water)	58.6	55.7	52.7	55.7	52.7
Additional water (lbs) absorbed with Potato Flour or Pregelatinized Corn Flour used	—	5.3	8.0	5.5	10.8
% Water absorption by weight of Potato Flour	—	106%	80%	—	—
% Water absorption by weight of Pregelatinized Corn Flour	—	—	—	110%	108%

Above table shows results of tests conducted to provide data on water absorption and retention for hard wheat flour alone, and in combination with potato flour and pregelatinized corn flour. (All ingredients at 14% moisture level.) A farinograph, which measures physical mixing characteristics and water absorption capacity of varied ingredients, was used in conducting the tests. It is the general conclusion from these tests that increased moisture absorption and retention achieved by use of pregelatinized corn flour, offers an advantage of extending shelf life for bakery products.

PREGELATINIZED corn flour, a dry-milled corn product, is being used in coffee cakes, sweet rolls and cookies to improve texture and eating characteristics as well as to increase shelf life of these bakery products.

It produces desirable effects in bakery products because it has outstanding water-holding and binding properties, making it an excellent binder and dough conditioner.

Because the corn flour is 90% or more pregelatinized, it hydrates to full property in cold water or aqueous media, with no cooking required by food processors using it.

This light-cream-colored flour, with a nut-like flavor, is manufactured by the Post Division of General Foods Corporation at their Corn Mill in Kankakee, Ill.

Actual baking tests

To provide an objective appraisal of pregelatinized corn flour, General Foods had it tested by an independent laboratory.

Actual baking tests were conducted to appraise texture and eating characteristics of sweet rolls and wafer cookies containing pregelatinized corn flour as an ingredient in their formulas.

Sweet rolls (see photo) were made by a control formula using no pregelatinized corn flour. These rolls were compared with rolls made by the same basic

formula except that 5% of the total bread flour was replaced with pregelatinized corn flour.

Results of the tests showed the volume, grain and flavor for rolls made by both formulations were rated as "very good."

The texture of the rolls made with 5% pregelatinized corn flour was "noticeably softer and more tender" than rolls made by the control formula.

In tests on wafer cookies (see photo), about 10% of the cake flour was replaced with pregelatinized corn flour. Here too, the color, appearance and flavor of the cookies made with both formulas was rated as "very good."

The texture of the cookies made with the formula using 10% pregelatinized corn flour, however, was rated as "short and tender" as compared with "slightly tough" for cookies made with the control formula.

Tests were also conducted to determine water absorption and retention properties of pregelatinized corn flour as compared with other type flours used as baking ingredients. Results of these tests are shown in Table 1.

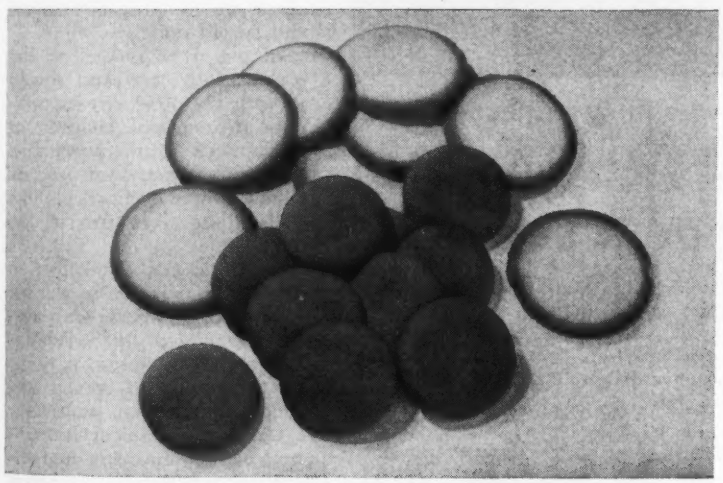
Other Uses. In addition to bakery products, pregelatinized corn flour is used as a binder in breakfast cereals and meat products. Another suggested use is as a thickener in such products as soups and mincemeats.

Good Stability. Much of the natural anti-oxidant present in raw corn is retained in pregelatinized corn flour, resulting in unusual stability in the dry product. The natural protein content, ranging from eight to nine per cent, is also retained.

It is classed as a food ingredient rather than an additive under the Food, Drug and Cosmetic Law and so can be used freely in food products. (Microbiological assays are consistently well within National Canners Association specifications.)

Pregelatinized corn flour is packed in 50- and 100-pound multiwall bags. Further information on the products is available from Ross Barzelay, Sales Manager, General Foods Corporation, Corn Mill, Kankakee, Ill.

7552 on Reader Service Slip.



Wafer Cookies

Ingredient	Control Formula lbs.	ozs.	PGF Formula lbs.	ozs.
Granulated Sugar	3	0	3	0
Shortening (regular)	3	0	3	0
Salt	0	1	0	1
Whole eggs	2	0	2	0
Cake flour	3	8	3	2½
Pregelatinized Corn Flour	—	—	0	5½

Mixing instructions: Cream the sugar, shortening, salt and flavoring (as selected) until light. Slowly add the eggs. Add the cake flour and pregelatinized corn flour to the other blended ingredients and mix until smooth. Bag out on a greased pan and bake at 375 F.

Sweet Rolls

Sponge Formula (Identical formula was used for the sponge for both the control formula and the PGF formula)

Ingredient	lbs.	ozs.
Bread flour	9	8
Water	6	4
Yeast	1	0

Mixing instructions: Mix at low speed for one minute in vertical mixer. Mix at medium speed for two minutes or until smooth. Sponge time — two hours, at 76 F.

Dough Formula

Ingredient	Control Formula lbs.	ozs.	PGF Formula lbs.	ozs.
Bread flour	3	0	2	6
Pregelatinized corn flour	—	—	0	10
Salt	0	5	0	5
Sugar	2	0	2	0
Non-fat dry milk	0	12	0	12
Shortening	2	0	2	0
Whole Eggs	2	0	2	0

Mixing instructions: Mix at low speed for one minute in vertical mixer. Mix at medium speed for nine minutes, or until smooth. Dough time — 10 minutes, at 80 F. Blend the sponge and dough and process in the usual manner for sweet rolls, coffee cake and similar products.

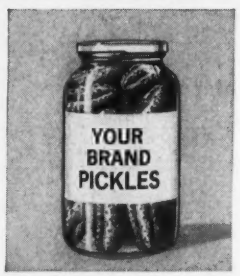
Table 2 — Analysis of Pregelatinized Corn Flour

% Moisture when packed	8.0 to 9.9
% Fat (corn oil)	1.0 maximum
% Protein	8.0 to 9.0
% Fiber	0.45 to 0.55
% Ash	0.25 to 0.35
% Corn Starch	81 to 83
% Gelatinization	90 plus
Range of Densities (Ounces/dry quart)	9.7 to 19.0
Mesh Size	
Through USS #70 Screen	98%
Through USS #140 Screen	50%

How Sweetose Syrup ensures precise control of browning and sweetness—gives

That "Magic Touch" of Balanced Flavor...Appetizing Color and Sheen that builds repeat sales!

In catsup, Sweetose holds that "fresh-pack" rich red color. Enhances flavor. Improves gloss and sheen.



In sweet pickles, Sweetose assures balanced sweetness; a tangier flavor with faster finishing, less softening.

It takes a touch of magic if pork and beans are to have the kind of flavor and appearance that will win *complete* customer approval in today's highly competitive sales race. And there's no surer, more economical way to give your beans this delicate "just-right" touch than with Sweetose, Staley's enzyme-converted corn syrup.

Sweetose ensures precise control of browning without excessive cooking. Gives beans a deeper, richer, more appetizing color and sheen. Imparts a balanced sweetness that never varies. Delivers a zestier, tangier flavor that builds consumer loyalty for your brand.

For complete information on the quality improvement advantages Sweetose can give in a variety of applications, see your Staley Representative or write to:

A. E. Staley Mfg. Co., Decatur, Ill.

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ingredients

Natural Fermentation Yeast Flavor

For use in chemically leavened bakery foods

An instant, natural fermentation yeast flavor ingredient has been developed by Vico Products Company, 415 W. Scott St., Chicago 10, Ill., for use in chemically leavened bakery foods.

The natural fermentation flavor, known as VICO 400, instantly imparts true yeast leavened flavor and aroma in chemically leavened bakery products without time-consuming dough fermentation.

By capturing the full specrum of flavor notes and characteristics of natural yeast fermentation, the ingredient improves and intensifies the taste appeal of dry mixes, bread and rolls, biscuits and muffins sweet goods, coffee cakes, waffles, pancakes, etc.

The natural fermentation yeast flavor is a dry powder, which is highly stable either alone or in prepared mixes and frozen doughs.

In use, it is added to the formulations dry and mixed in with the other dry ingredients. No special changes or precautions in production methods are required. And no changes in the final product will result from use of the flavor.

It is especially effective in combination with the blander types of chemical leavening agents such as glucono-delta-lactone, calcium acid phosphate, cream of tartar and sodium aluminum phosphate.

Complete technical information on the flavoring ingredient is provided in Technical Bulletin No. 400-1, available from Vico Products Company.

Bulletin also includes an appendix with formulas for regular biscuits, hot roll type biscuits, pizza shells, English muffins, coffee cakes, sweet rolls and white bread.

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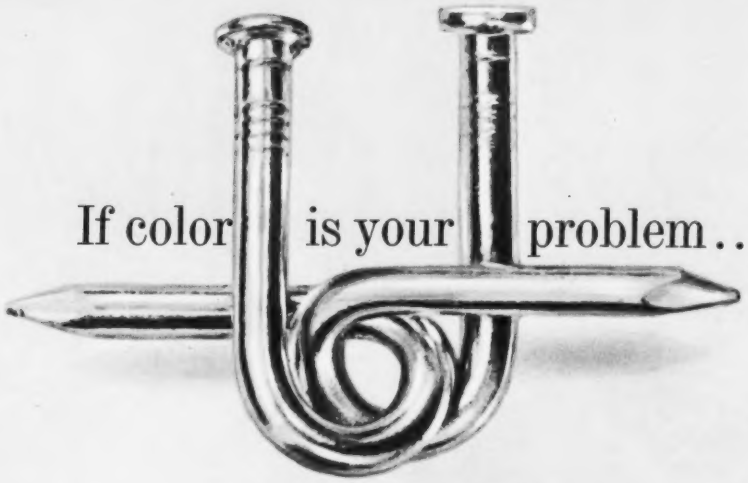
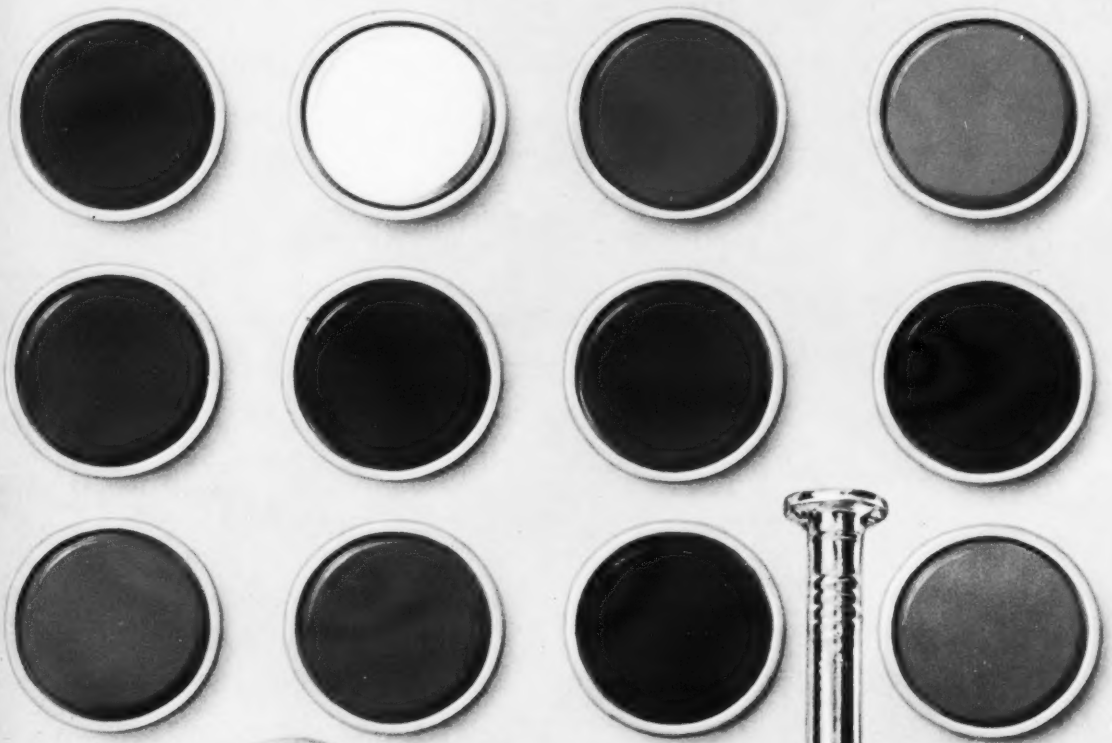
For more information on product at right, circle 7555 . . . see information request blank opposite last page.



If color is your problem...



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STARCHES and SYRUPS

Keep your product in her cart ...week after week

Corn starches and syrups are time-tested, nourishing, economical carbohydrates. They've long been used and accepted as foods and food ingredients. They may be the answer to problems you have resulting from recent legislation regarding foods because:

In addition to being time-tested, nourishing, economical carbohydrates, corn starches and syrups can provide valuable functional properties as:

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CORN STARCH is ideal for baking, baking powder, meats, mustard, salad dressing, custards, pudding, canned soups, etc.

CORN SYRUPS are used in mixed syrups, infant foods, preserves, jams, jellies, baked beans, sausage and cured meats, frozen and canned fruits, frozen deserts and many other products.

CORN SYRUP SOLIDS are widely used in ice cream, baked goods, frozen fruits, dry food mixes, jams, jellies, table ready and canned meats, to mention just a few.

Whatever you may be processing OK BRAND corn syrups or starches will help you keep your product in her cart week after week.

Call the Man from Hubinger ...his service is freely available. Write, wire or phone today.

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New source of ethyl vanillin

Ethyl vanillin will soon be manufactured by Rhodia, Inc., 230 Park Ave., New York 7, New York.

The synthetic flavoring is widely used in the food industry. Rhodia estimates that more than 400,000 pounds of this flavoring are used each year in this country.

The vanillin will be made by a completely new process which will produce a high quality product free from off-odors.

Rhodia will install a special facility at it's New Brunswick, N. J. plant in 1961 for the production of this new flavoring.

Natural source for . . .

Vitamin C Fortification

Extremely potent source available as concentrate and powder

Acerola concentrate, made from juice derived from a cherry-like fruit grown in the Caribbean, Hawaii and Florida, provides food processors with a new source of high, natural vitamin C content for fortifying many foods.

Six ounces of juice, from which the concentrate is made, contains as much vitamin C as 15 quarts of orange juice. In addition, it also contains thiamine, carotene, vitamin B_6, riboflavin and niacin.

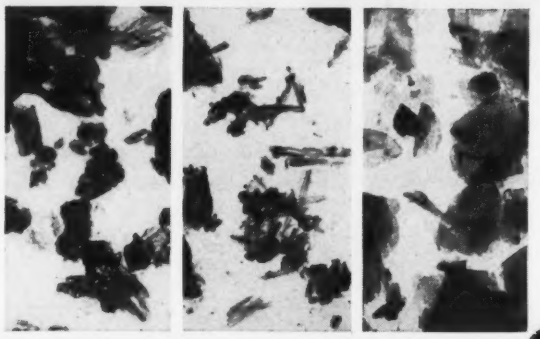
The concentrate is a thick, free-flowing liquid, which is available in frozen form. It will also soon be available in powdered form.

Concentrate may be incorporated into fruit juices. Its use in baby foods is well established, where it gives a high natural vitamin C content with low possibility of allergic results.

It is also suggested for use alone or in conjunction with other ingredients in dry cake

Electron micrographs of Micro-Cel A, C and E show particle structures ideal for food applications.

1μ



Micro-Cel helps keep food mixes bone dry!

Micro-Cel®, Johns-Manville's new synthetic calcium silicates, answers caking problems. Highly absorbent, it remains a free-flowing powder after absorbing triple its weight. High bulk (4½ lbs. to a cu. ft.), irregular particle shape and high surface area, make it ideal for coating sticky and hygroscopic particles. Micro-Cel gives low cost per pound-volume. To keep food mixes free-flowing, even under the worst conditions, try Micro-Cel. For information, samples and assistance, mail coupon below!

JOHNS-MANVILLE
Celite Division

1961

JOHNS-MANVILLE, Box 14, New York 16, N. Y.
In Canada: Port Credit, Ontario.

☐ Please send additional data.

☐ Please send free sample of suitable grade of Micro-Cel for use in:_____

☐ Have local Sales Engineer contact me.

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Company_____

Address_____

City_____ Zone____ County_____ State____

Celite Division synthetic silicates used as anti-caking agents up to 2% are not considered food additives as defined by FD&C Act Amended, Section 201(s).

7557 on Reader Service Slip.

KELCO COMPANY

REFINED ALGIN PRODUCTS

technical bulletin

NO.

Use unique Kelco Algin Colloids to improve your food products

SALAD AND DESSERT GELS made with KELCO-GEL HV have superb body and excellent texture. They will not melt, soften or show leakage at room temperatures. Mold release is fast and clean, without heat.

DIETETIC PUDDINGS made with KELCO-GEL LV have firm velvety body for added taste and eye appeal. Palatability of low sugar formulations is greatly improved by the gelling action of KELCO-GEL LV.

PACKAGED DRY MIX DESSERTS made with KELCO-GEL HV and KELCO-GEL LV absorb cold water rapidly to produce uniform, tender-textured puddings, gels and fillings that are extra light and effectively stabilized.

No More Effective Way To Produce Clear, Sparkling Food Gels

Tailor made to produce clear sparkling gels, the KELCO-GELS are sodium salts of alginic acid that are highly soluble in water.

KELCO-GEL HV is recommended for use where considerable added viscosity is required with a minimum amount of stabilizing action.

KELCO-GEL LV is recommended for use where a high degree of stability is desired along with a minimum change in viscosity and body properties.

Yours On Request: Free samples of KELCO-GEL HV and KELCO-GEL LV and new Technical Bulletins describing these unique Kelco algin products. At your service, too, are highly qualified food technicians ready to give individual attention.

KELCO-GEL HV® KELCO-GEL LV® *products of* **Kelco Company**

75 Terminal Avenue, Clark, New Jersey • 20 N. Wacker Drive, Chicago 6, Illinois • 530 W. Sixth Street, Los Angeles 14, Calif.

Cable Address: KELCOALGIN — CLARKNEWJERSEY

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mixes, ice cream, jams and jellies, punch, sherbet, soft drinks and syrups as well as a wine clarifier.

There are no adverse effects upon flavor of the product in which concentrate is used. If anything, in fact, it has a tendency to enhance the flavor of fruit juices at levels of required use.

Complete technical data on acerola concentrate is available in a 5-page bulletin from Nutrilite Products, Inc., Buena Park, Calif.

7559 on Reader Service Slip.

Processing catalysts listed in catalog

A line of catalysts for food processors and other applications, in a 16 page catalog, is available from the Chemical Products Division of Chemetron Corporation.

Properties and uses are given for commercially proven catalysts, including steam-hydrocarbon reforming, fat hydrogenation, selective hydrogenation.

The catalog itemizes a selection for customer use in research and process investigation.

7560 on Reader Service Slip.

Technical information on refined guar gums

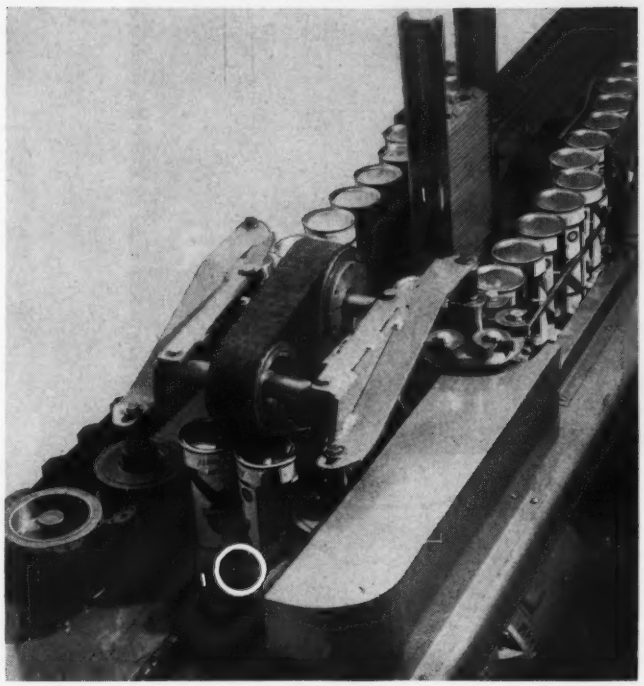
Technical information about a series of four different grades of refined guar gum is available from The Burtonite Company.

The information bulletin, Series 7, points out several interesting physical and chemical features about the gums which have been used to advantage in application.

For instance, it is soluble in cold water, it gells in borated solutions, and the viscosity of a solution can be reduced by agitation.

Guars are currently being used as a stabilizer in food products such as frozen desserts, cheese, beverages, dressings, meat products, pastery and dry mixes.

7561 on Reader Service Slip.



Double line of cans feeds into basic-unit module in an upside-down position (rear). Cans are pushed into clip (circle) by pressure from roller above while traveling

Arizona Brewing Co., Phoenix, is marketing both 12-oz and 16-oz six-packs with plastic 'Phantom-Pack' clip. One clip fits both sizes

High-impact piece holds cans without stiffener, tape or fiberboard. Cans remove easily — like picking bananas from a bunch

Plastic clip creates six-pack at big savings

PLASTIC CLIP GRIPS cans by top chimes to create a low-cost multipack having these advantages:

- Clips for six packs cost approximately one-third less than conventional fiber overwraps for 12-oz cans, only one-half as much as fiber overwraps for 16-oz cans.
- Machine to apply them costs less than conventional overwrapper, occupies only 42 by 45 in. floor space for the 600 cpm model.
- Clips occupy 42 to 55 per cent less cubic storage volume than equivalent 12-oz and 16-oz overwrap material.
- One size fits both 12-oz and 16-oz cans, or other sizes having same diam. This greatly simplifies inventory and accounting problem.

"Phantom-Pack" clip is made of specially formulated polystyrene, comes in variety of colors. Each clip weighs approximately one-half oz — about one-third as much as some 12-oz fiber overwraps for six-packs, one-fourth as much as 16-oz overwraps.

Unique snap action holds cans without use of stiffeners between cans, tape on sides or bottom, or other accessories needed by other fastener systems in past.

Consumer can pick up multipack conventionally by grasping two holes in clip. Cans are readily detached from pack by a downward twist from the clip.

Multi-packer machine operates on continuous motion principle. Cans enter in two rows, are indexed on chain flights and brought together over station where clips are fed and snapped automatically into place during travel.

Desired label alignment is achieved by having cans turn as they travel, until rotation is stopped by fingers which meet side seam. Thus, lithographed labels always face uniformly outward.

Cans emerge from the 45-in.-long machine ready for casing or traying. Only part-time attention is required. Magazine holds 2000 clips — enough for 40-min sustained run before refilling.

Phantom-Pack unit has only one reciprocating part, comes in modules which may be grouped to obtain higher production rates. Each module has rate of 300 cans per min for six-packs.

At distribution level, the six-packs stack well, are easy to grasp from display case, cool fast and provide instant brand identification from the uniformly faced can labels.

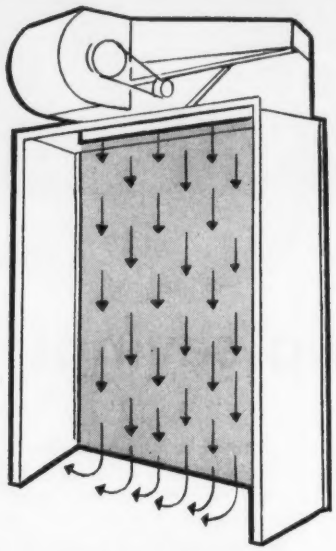
Fast cooling, easy carrying and easy removal from pack are consumer advantages. Among other intrinsic benefits: youngsters like to build toys with the clips; and, when discarded, clips don't overload the garbage can.

Clips also come in two- and four-can multiples. Since cans are fully exposed and can be removed individually, the Phantom-Packs may be used to encourage multiple sales of items not previously sold in multi-packs, without blocking single-can sales. END

Phantom-Pack clips and multi-packer are developments of Tay-Pak Corp., San Francisco, Calif., and are distributed by Brunsing & Sons, Inc., 260 California St., San Francisco 11, Calif. 7562 on Reader Service Slip.

AIR ISOLATOR*

opens *doorways to unlimited traffic*



Air Isolator is available for openings up to 8′ wide, 10′ high.

Traffic speeds through "open" door as Air Isolator immobilizes movement of air between the two areas.

screens out *heat, cold, humidity, dust, odors, insects*

• AIR ISOLATOR is the proven and practical answer to high volume traffic problems in busy Food Processing Plants everywhere.

AIR ISOLATOR provides a high velocity curtain of vertical air across open doorways to form a shield between outside and inside air. During periods of heavy traffic, doors can be opened and left open. Traffic moves faster; dust, cold, heat, odors or insects are repelled; worker comfort is assured.

* registered trademark and product of Lehigh, Inc.

WRITE FOR INFORMATION

Complete data on the economical Air Isolator is yours for the asking. Write today to Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON
COLD STORAGE DOORS

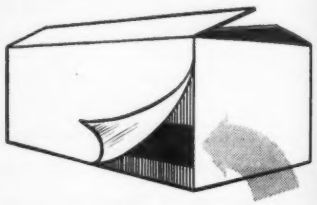
7563 on Reader Service Slip.

packaging

New kind of corrugated container construction — using 'strip reinforcement' — avoids overpackaging, yet gives

Extra strength at any point

A new principle in corrugated container construction which provides extra strength where needed, yet eliminates costly overpackaging, involves laminating a strip of reinforcing material between the corrugating medium and the outer liner in certain areas of the container.



Arrow points to strip of reinforcing material laminated between corrugating medium and outer liner

Special strength-analysis procedures determine areas where the reinforcing strip is needed to meet a particular product's strength requirements.

New "Armor-Gard" packaging technique requires designing a specific container for each packaged product — substituting a "rifle" approach for the still current "shotgun" method of improving container strength by increasing the weight of the entire package, even though some package areas do not need the extra strength.

Specifically — in numerous tests over the past five yr, tests on boxes used in the rubber and automotive industries showed that economical strip reinforcement increased bursting strength by 60 per cent and puncture resistance by 4 per cent.

Supplier: Olin Mathieson Chemical Corp., 460. Park Ave., New York 22, N.Y.

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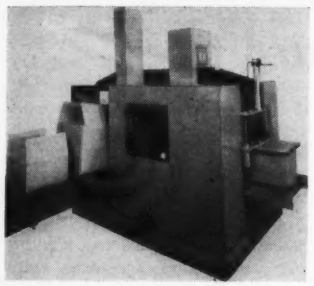
Automatically adjusts to seal corrugated cartons of varying sizes

Features: Sealer operates at speeds up to 12 cartons per minute; adjusts automatically to seal corrugated containers of varying sizes regardless of sequence in which they enter.

Unit can seal top and bottom of large box — up to 18 by 20 by 30 in., then regulate itself to seal small box — down to 4 by 8 by 10 in.

Thermoplastic sealant, which sets in less than three seconds, is applied in a way that eliminates need for boxes to undergo long compression.

Operation: Union-Camp K & M Randomatic Case Sealer has internal mechanism which moves within limits of box sizes for which it is designed. As box enters machine, mechanism moves in from its outer limit until it meets resistance of box. Once carton is sealed, mechanism returns to its outer limit and awaits next unit.



Sealer is small; floor space required is only about five ft in width and seven ft in length

Filled cartons enter sealer on conveyor with bottom flaps folded but unsealed and top flaps unfolded. Through series of rods, inner and outer flaps on top of carton are folded into place. Box is then brought under pressure as it passes to sealing section.

In sealing section, pressure on top and bottom flaps is released so that sealant applicators can be inserted. As applicators are withdrawn, pressure is again applied while cartons move to discharge end.

Supplier: Union Bag-Camp Paper Corporation, 233 Broadway, New York 7, N.Y.

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If you've been frustrated by film seals that lose their grip, follow the example of Seabrook Farms. Try "SCOTCHPAK"— the heat-sealable film that never fails.

The tough, durable seal of "SCOTCHPAK" holds the answer to your flexible packaging problems. It is made differently than any other film on the market. "SCOTCHPAK" is specially tailored by 3M with the strictest quality-control supervision. It heat-seals easily at 300° to 400° F., 20-60 psi pressure, making a seam that is as strong and impermeable as the film itself. "SCOTCHPAK" stays strong and pliable year after year, at temperatures from —70° F. to 240° F. *If you have been let down by seals that let go, it's time you tried* "SCOTCHPAK." We will be happy to send you samples and work with your packaging people. Write or call Film Products Group, 3M Company, 900 Bush Avenue, St. Paul 6, Minn. Dept. ICC-21.

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

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are you the low man on the totem-pole

. . . always last to receive FOOD PROCESSING?

You needn't be. To get your *own* copy, addressed to you personally, fill out the subscription request form opposite the inside back cover. No charge, of course, if you qualify.

Since two-strip taping does not require a compression of the inner flaps, it is particularly practical when product contained does not support the carton flaps

Here's proof of

Faster carton sealing with reinforced tape

Recent acceptance by the major carriers — truck, rail and air — of the so-called "two-strip" method of carton sealing has quickened food-industry interest in the possibilities of reinforced gummed tapes as a substitute or replacement for more conventional sealing methods.

The two-strip method provides effective carton sealing for most food industry shipments — which are of a one-

TABLE I — Closure Efficiencies

Method	Efficiency	No. of Boxes Sealed Per Hr
Two-strip tape	100	240
Gluing	77	185
Stitching and Stapling	42	101
Six-strip tape	40	96

TABLE II — Box Closure Time (Minutes)

	Manual				Machine	
	2-Strip Tape	Glue	Stitching & Stapling	6-Strip Tape	Tape	Glue
Bottom	.1380	.1640	.4040	.3300		
Top	.1090	.1600	.1610	.2900	.0333	.050
Bottom preparation	.0016	.0001	.0200	.0019	negligible	.002
Top preparation	.0016	.0001	.0100	.0019	negligible	.002
Total min. — box	.2502	.3242	.5950	.6238	.0333	.054
No. of boxes/hr	240	185	101	96	1800	1200
Efficiency	100	77	42	40		

way nature — and is faster than gluing, stitching and stapling or six-strip tape sealing using non-reinforced gummed tape.

Just how much faster was not clear, however. As result, American Sisalkraft Corp., 55 Starkey St., Attleboro, Mass., contracted with Container Laboratories, Inc., New York, N.Y., to conduct comparative application efficiency studies on containers of "average" size.

Time studies of manual operations were conducted for all closure methods; in addition — wherever automatic equipment was available — automatic methods were investigated.

(For the six-strip taping method, a semi-automatic dispenser was used, since this method is not adaptable to fully automatic equipment. The stitching and stapling operations also were performed with semi-automatic equipment for the same reason.)

Results of the tests (summarized in Tables I and II) indicate that better than doubled efficiency can be obtained by two-strip reinforced-tape sealing vs. the six-strip plain gummed tape method.

Further, just about the same ratio applies when two-strip is compared to stitching and stapling. Improvement is not quite so pronounced with gluing, but the increase, as shown, in Table I, still is substantial.

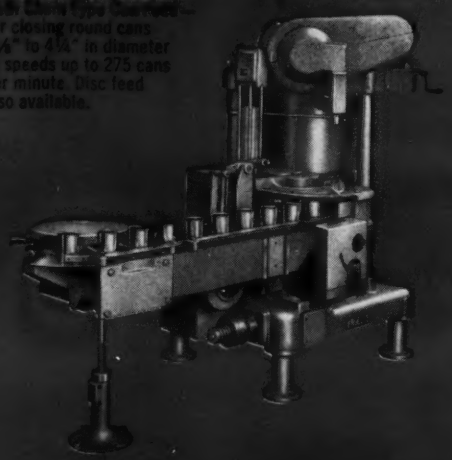
Comparing taping and gluing on the basis of machine time, some 1800 cartons were sealed per hr with one type of automatic sealing machine against a maximum of 1200 per hr with an automatic gluing machine.

This points up the fact that

Technical consultation on this article was provided by C. P. Klingler, chief, Equipment & Supplies Packaging, Container Div., Quartermaster Food and Container Institute for the Armed Forces, 1819 W. Pershing Rd., Chicago 9, Ill.

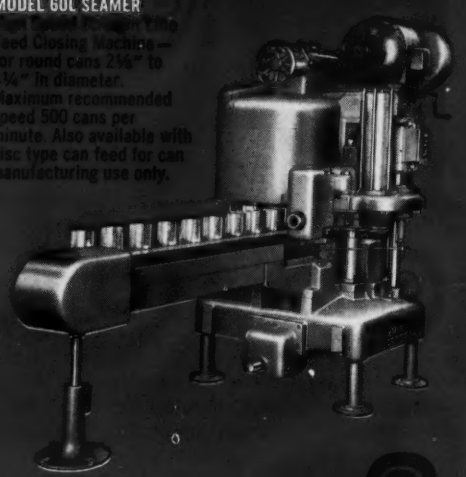
Which ANGELUS CAN CLOSER for you?

MODEL 40P-MSLF SEAMER
for closing round cans 2⅛" to 4¼" in diameter at speeds up to 275 cans per minute. Disc feed also available.



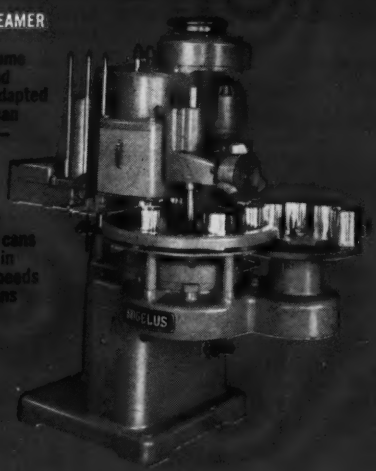
MODEL 50P SEAMER
for making or closing round cans 5" to 6¼" in diameter at speeds up to 150 cans per minute.

MODEL 60L SEAMER
Feed Closing Machine — for round cans 2⅛" to 4¼" in diameter. Maximum recommended speed 500 cans per minute. Also available with disc type can feed for can manufacturing use only.



MODEL 10P SEAMER
moderate volume production and particularly adapted for frequent can size changes —

adjustable for closing round cans 2⅛" to 4¼" in diameter at speeds of 30 to 85 cans per minute.



These are a few of the many Angelus Seamers designed to meet all round can closing requirements. Angelus, with over 45 years of specialized experience, is the nation's only manufacturer exclusively producing automatic round can closing machines.

WRITE TODAY for complete details. Specify products, can dimensions and your capacity requirements.

ANGELUS
Sanitary Can Machine Company
Cable Address "Angelmaco" Western Union Code
4900 Pacific Boulevard • Los Angeles 58, Calif.

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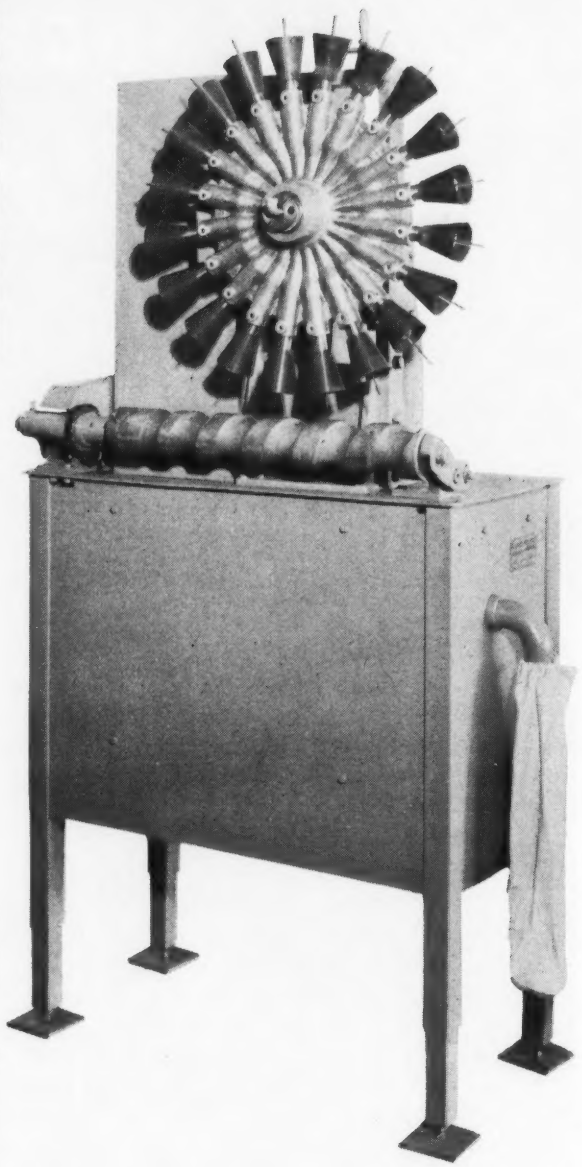
Atlas ★ Pacific Bottle Cleaner

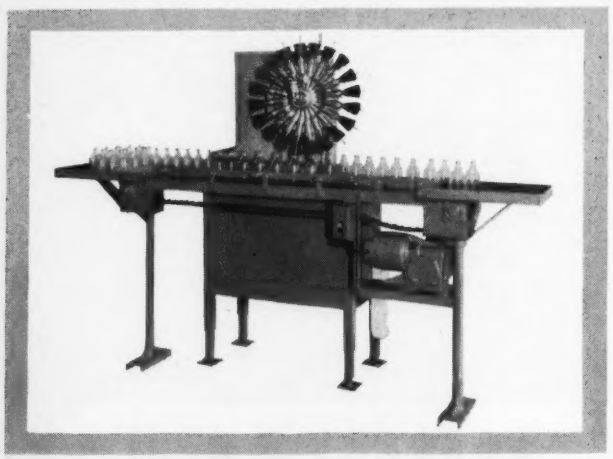
Model A-C 100

To remove lint, paper and carton dust from one way bottles by use of air blasts and suction.

GENERAL SPECIFICATIONS

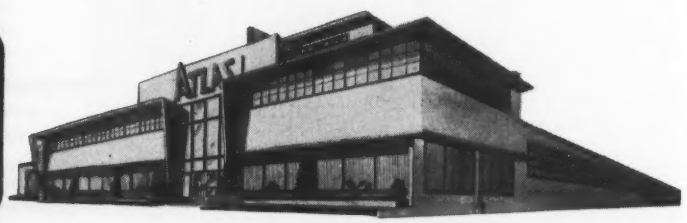
MODEL NO.	AC-100
OVERALL HEIGHT = Conveyor Height (SPECIFY)	+ 30" - 38"
OVERALL LENGTH	40"
OVERALL WIDTH	26"
CAPACITY—BOTTLES PER MIN.	60-400
MOTOR HP	Drive—variable speed ½ HP Vac. Pump ¼ HP Belt Drive
CONVEYOR HEIGHT RANGE	As specified
BOTTLE SIZE (SPECIFY)	Diam. Min. 2" Max. 4" Height Min. 4½" Max. 12½"
WEIGHT	700# Approx.
CUBIC FEET	70 Cu. Ft. Approx.
AIR PRESSURE REQUIRED	50 psi—Regulate as required
AIR CONSUMPTION	Approx. 5 to 10 cu. ft./min.
ELECTRICAL CHARACTERISTICS (SPECIFY)	As required—Std. 220/440 volt 60-cycle 3-phase
STANDARD EQUIPMENT	Includes worm for one bottle size—as specified





Atlas★Pacific Bottle Cleaner in operation. Conveyor not included.

ATLAS-PACIFIC ENGINEERING COMPANY, INC.
1321 67th Street • Emeryville, Calif.



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considerable progress has been made in developing two-strip sealing equipment that is fast in operation, provides uniform sealing from carton-to-carton and eliminates nearly all waste.

Other advantages of reinforced tape brought to focus by the study include protection against pilferage (torn tape can readily be seen), easier opening at the receiving end, no unsightly openings and seams and the ready inclusion of preferred features — such as a tear strip.

Of particular interest to processors is fact that the tape can be printed in various colors to advertise the firm name or product, or to provide special directions for freight handlers or consignees — such as "Handle with Care."

If produced in colors, the tape contributes to a more attractive package, and one which is easy to locate and identify.

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Stronger containers for frozen turkeys

Safer stacking at high humidities

A new type shipping container for frozen turkeys is being introduced by the Wirebound Box Industry.

Developed by Package Research Laboratory, Rockaway, New Jersey, container is reported to overcome the weaknesses of conventional frozen turkey containers and allow safe, high stacking under high humidity conditions.

Called the "Wirebound 'T Box," which is expected to be competitive in price with many conventional frozen turkey boxes, it is actually two containers in one — a corrugated tray and a wirebound wrap-around component (see photo).

The package fits blast freeze and liquid freezer operations and present handling practices. Five standard sizes have been developed to hold from two small toms up to four large hens.

There is a modification in

the corrugated tray to fit operations where the practice is to blast freeze the birds while palletized in the bottom half of a box. In this case, the sides of the corrugated tray are die-cut and slotted so they can be folded down to allow proper circulation.

Turkeys are blast frozen in the corrugated tray. The wire-

"Wirebound 'T' Box" for frozen turkeys consists of an inexpensive corrugated tray and a rugged four-section wirebound "wrap-around" with a prestitched corrugated panel to form the top of the complete package

bound outer covering is then folded girthwise around the inner box width, its prestitch corrugated panel forming the top.

If the birds are liquid-frozen, they are placed in the tray and the wirebound component is added immediately.

During extensive laboratory testing in a 14-foot revolving drum, the "Wirebound 'T' Box" withstood over 110% more "falls" in the average than conventional cartons of the same size.

In stacking tests, the "Wirebound 'T' Box" withstood 9400 pounds of overhead pressure compared to the conventional boxes' 1400 pounds limit. After 72 hours at 90% RH, the new container withstood 6910 pounds of overhead pressure compared to only 770 pounds for the carton.

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HELP YOURSELF . . . .
For a quick reference to new technical literature available this month, see the classified listing on page 122.

Notice how the thin film keeps the water vapor trapped?

It is also a good oxygen barrier. And it is good to eat.

Visualize a translucent edible film cast directly on a food—skin-tight. No further wrap is needed to keep the food fresh, moist, and at correct weight. The coating itself is bland, stable against oxidation, wholesome, nutritious.

There are many other possibilities your product development department might see in *Myvacet® Distilled Acetylated Monoglycerides*. These non-greasy materials, made from edible fats, are well suited as slab oils, equipment lubricants, emulsifiers, food container components, and plasticizers for other coatings. They are approved for use, up to 5%, in or on finished food.*

To take a closer look at these interesting materials, send for samples of *Myvacet Distilled Acetylated Monoglycerides* and for bulletins detailing specific uses with poultry, frozen and processed meats, frozen fish, dried fruits, nuts and candies, and storage eggs. Write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

*U. S. Food & Drug Regulations Sec. 121.1018

producers of **Myvacet®** *Distilled Acetylated Monoglycerides*

DPi

Also . . . Myverol® Distilled Monoglycerides . . . vitamin A for foods and pharmaceuticals

Distillation Products Industries *is a division of* **Eastman Kodak Company**

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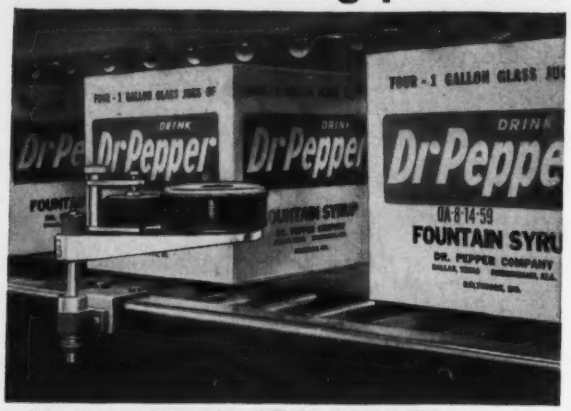
No more marking problems



with an automatic "ROLACODER" marker

Attaches to conveyor, case-sealer, etc. to mark from side or top • Works by friction • Imprints legible mark in same spot on case after case • Takes only 1 or 2 minutes to change type • No tricky adjustments • Precision-made for long trouble-free service • Pays for itself in months • Other models for marking 2 and 4 sides simultaneously.

Now available with amazing 'MAGIC INK ROLL' that *never needs re-inking!* Made of PORELON® microporous plastic

Write for "ROLACODER" literature

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines — Gottscho®

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A BETTER CLOSURE for SMALL PAPER BAGS

UNION SPECIAL'S *Style 60000 D* Bag Closing Machine, producing the exclusive Dubl-Tape closure, is designed to speed packaging . . . cut costs . . . and improve appearance.

- **FAST—Speed to match output of standard filling and weighing equipment.**
- **NEAT—Produces an eye-pleasing, sales-stimulating package with high merchandising value.**
- **ECONOMICAL—Operating cost per bag is at a minimum . . . uses inexpensive cotton thread and paper tape.**
- **VERSATILE—Adjustable for a wide range of bag sizes, short or long runs.**

Write for BULLETIN No. 100 to get the complete facts on this machine . . . and how it can do a better closing job for you.

FINEST QUALITY — Union Special® MACHINE COMPANY
432 N. Franklin St., Chicago 10, Ill., U.S.A.

BAG CLOSING MACHINES

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Rugged...Dependable...Practical

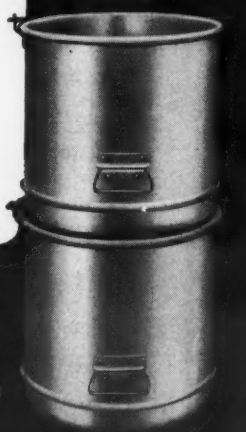
Commercial Aluminum Ware FOR HANDLING BULK FOODS!

Ease of handling, storing and cleaning . . . maximum utensil life! Get them all with Commercial aluminum food-handling equipment. Designed to meet the practical requirements of meat and food processors, Commercial utensils are built of extra heavy aluminum with double strength at critical wear points . . . rounded corners and closed beaded edges for maximum sanitation . . . large, roomy handles for quick, easy moving and stacking. Bright aluminum finish is acid, stain, abrasion and corrosion resistant for dependable, long-life service. You get long run economy *plus* lower initial cost when you buy Commercial aluminum food-handling equipment!

Write today for information and prices.

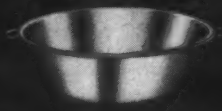
HEAVY DUTY STOCK POT
For extra heavy usage. Heavy steel handles. Available with faucet and strainer. 12 sizes, up to 100 qt. capacity.

STACKING INGREDIENT PAILS
Stack conveniently for efficient storage. Long wearing service. Three sizes, up to 36 qt. capacity.



STACKING BAIN MARIES
Excellent for replacement of crocks. Save valuable storage space. Alumilite finish. Three sizes, up to 20 qt. capacity.

UTILITY/DISHPAN
Alumilite finish Sturdy, versatile, practical. Five sizes, up to 60 qt. capacity.



MEAT TRIM TUBS
Built to take it. Ideal for meat trimmings, storage, etc. Two sizes 20 and 41 qt. capacity.

DOLLY
For handling extra heavy tubs and containers. Available in three sizes, 21" diameter illustrated.

Also Available: LARGE MIXING BOWLS—Heavy steel handles. Alumilite finish. Five sizes, up to 80 qt. capacity. PAILS—Versatile, rugged, practical. 4 sizes, up to 22 qt. capacity.

HARLOW C. STAHL COMPANY, 1373 E. JEFFERSON AVE., DETROIT 7, MICH.

7575 on Reader Service Slip.

packaging

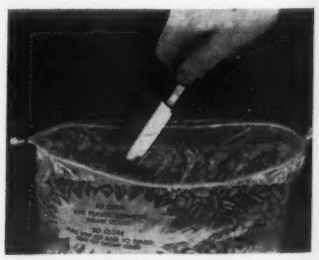
Drawcord recloses poly bag

New polyethylene bag construction that can be reclosed with a drawcord allows the consumer to break the heat seal, take out a portion of the product and then tighten the drawcord for reclosure.

Poph-Itt Cereals, Inc., cereal manufacturer with plants at Stockton, Calif., and Minneapolis, Minn., has adopted the new bag for its 16-oz economy package of wheat puffs.

In addition to its reclosing function, drawcord serves as an easy-carry handle

Poph-Itt reports that the large, attractive package has led to better in-store display, and that the drawcord feature has promoted consumer acceptance.



Wide bag opening permits easy product withdrawal

Further, due to moisture protection afforded by the reclosable bag, the product's

desirable characteristics are retained longer.

The Re-Clos-It bag is bottom-filled and heat-seal closed—the gusset-type top having been sealed in manufacturing.

In use, the consumer slits the gusset top along a crease, and, after removing a portion of the product, recloses the bag with the drawcord.

Supplier: Bemis Bro. Bag Company, 408 Pine St., St. Louis 2, Mo.

7576 on Reader Service Slip.

Presents technical data on printing polyethylene

Technical data on "Printing of Polyethylene" is subject of 16-page booklet issued by U.S. Industrial Chemicals Co., Division of National Distillers and Chemical Corporation.

Booklet is divided into five sections covering Methods of Treating Polyethylene Film for Printability; Methods of Printing Polyethylene; Printing Inks; Field Test Methods; and Glossary of Common Terms.

Numerous diagrams and illustrations serve as an aid in presenting the material to the reader.

Printing processes discussed include flexographing printing, rotagravure, silk screen process, transfer printing, offset printing and embossing.

Sources of information and references are included throughout the booklet.

7577 on Reader Service Slip.

". . . a very good worker, but I don't think he's quite got the hang of it yet."

1500 CASES/hr.

increase casing speeds 25 TO 50%

—AND CUT LABOR REQUIREMENTS BY ½ OR ⅔

Model FM 42 Case Set-Up Machine, shown here integrated with an FMC Non-Shock End-Open Caser, in field test operation at one of California Packing Corporation's plants.

—with the NEW SURE-WAY®

CASE SET-UP MACHINE

If you have either an FMC Non-Shock Caser for cans, or a "Sure-Way" Package Caser, consider the additional speed, efficiency and savings in operator manhours now available to you with the new, *fully-automatic "Sure-Way" Case Set-Up Machine.*

Under present conditions, if you are operating your caser in the area of 1200 cases an hour, you are probably using two or three operators to set up and feed cases to the machine. *Add a "Sure-Way" Case Set-Up Machine and experience these benefits:*

- *Up production to 1500 cases an hour*
- *Reduce manpower by 1 or 2 men*

The only manual function involved is that of placing flat shipping cases in the feed magazine of the Set-Up Machine—it's as simple as that. In fact, one man can easily attend two automatic lines at the same time.

An extremely versatile unit, this machine can be made to handle top, side or end-open cases as large as 25″ x 24″ x 18″, or as small as 7″ x 7″ x 3″—and given ranges between these extreme limits. Moreover, it is easily adapted and integrated to existing caser installations, and in many instances may be furnished with a "Sure-Way" Case Sealer for a fully integrated operation.

Get full information on this precision engineered equipment today—for more profitable casing operations tomorrow.

Putting Ideas to Work

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION

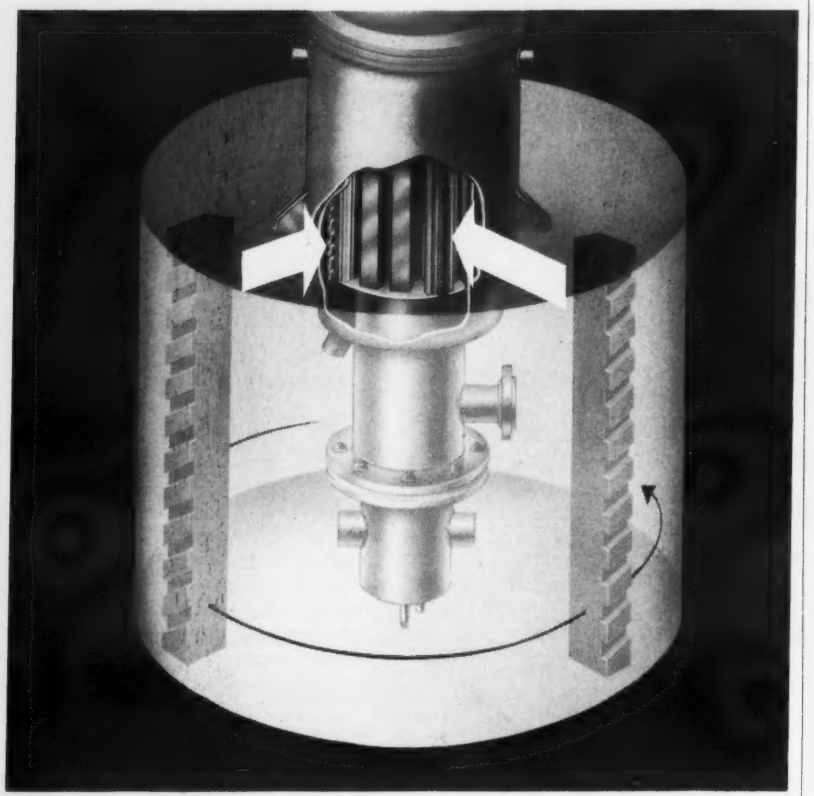
Canning Machinery Division

General Sales Offices:

WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

7578 on Reader Service Slip.

FLUIDICS* AT WORK



How a "wiped" evaporator surface protects food flavor

These variable-speed controlled "wipers" are unique to the Pfaudler® Wiped Film Evaporator. They wet the *entire* evaporator wall with a thin, uniform film.

Your food product is exposed to heat for an absolute minimum of time. No burn-on. No product degradation. No loss of flavor. So important when evaporating *heat-sensitive* or *highly viscous* foods.

Four wipers are provided in the Pfaudler evaporator. They are free-floating and held in contact with the evaporator wall by centrifugal force of an internal rotor. The slots in each wiper *prevent* product curl and help accelerate product movement down and off the heated wall.

This gives you the best combination for full utilization of heat transfer area, an *ultra-thin* film for high "U" values, and very short contact time at elevated temperatures.

The Pfaudler Wiped Film Evaporator is a high-capacity production unit that can provide an output of up to 50 lbs./hr./sq. ft. of evaporator area.

Choose from standard models with 4 to 100 sq. ft. of evaporating area. Larger sizes are available on a custom basis.

Test your product *first* in the Pfaudler Test Center. More data found in Bulletin 991.

Write to our Pfaudler Division, Dept. FP-21, Rochester 3, New York.

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment and experience in solving problems involving fluids.

PFAUDLER PERMUTIT INC.
Specialists in FLUIDICS . . . the science of fluid processes

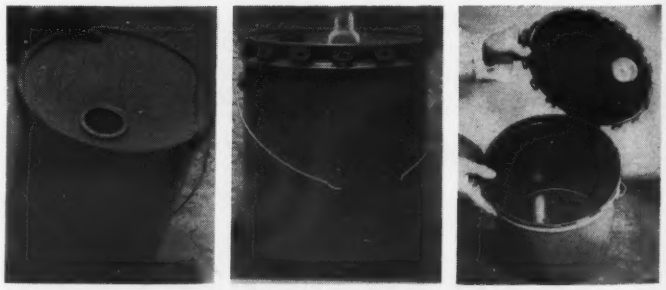
7579 on Reader Service Slip.

Goodbye earthenware jug! Eugene J. Garvy (left), president of Vegetable Juices Inc., lifts with one hand the five-gal lightweight steel pail the company now uses, while Bruno Mantoan, plant superintendent, hefts the seven-lb jug formerly used

At country's only bulk supplier of pure vegetable juices . . .

Lightweight, lined steel pails boost small-quantity shipments

Problem: Demand for natural onion and garlic juices has increased recently — a situation that has proved a "natural" for Vegetable Juices Inc., Chicago — this country's only bulk supplier of pure vegetable juices, essential oils and purees. However, both juices are extremely tricky to ship because of their high acid content. While large quantities are successfully handled in 50-gal, wooden, paraffin-lined barrels, smaller quantities heretofore have required shipping in



Rieke flexible plastic pour fitting is shown retracted into container cover (left) as it would be during shipment, extended (center) as it would be for pouring by customer. Inside view at right shows phenolic lining and retracted pour spout. Between uses, spout may be closed with screw-type cap shown, giving air-tight seal. For extra security during shipment, the fitting usually is covered over with a metal tamperproof seal

earthenware jugs.

A container virtually as old as man himself, the jug was heavy (empty weight — seven lb), fragile, hard-to-fill and bulky for storage and shipment because of the special wooden crates needed to protect the jugs.

Since the jugs were not disposable, they had to be shipped

Full-open-head steel pails are filled much more easily and quickly than earthenware jugs

back to VJI when empty — an expensive proposition.

The real expense, however, was in the labor needed to clean and refit the fragile jugs — which had a mouth no larger than a silver dollar.

Because of such limitations, VJI was forced to forego aggressive development of the sizeable market among smaller volume processors and concentrate on large-volume shipments in 50-gal drums.

It was evident that a lighter, less expensive and disposable container was needed — logically of metal.

Solution: First step in developing such a container was to find a lining which would prevent chemical interaction between the highly acid contents and the container wall.

Working with packaging experts at Vulcan Containers Inc., VJI chemists and officials decided on one of Vulcan's pigmented, thermo-setting phenolic interior linings as

new tape that signals "Sterile"

HELPS CUT SPOILAGE TO LESS THAN .01%

Now a new, fast way . . . a more reliable way to be sure canned products have been properly sterilized is helping many food processors cut spoilage. It's "Scotch" Brand Autoclave Tape No. 222.

Apply a short strip to "judas" cans. When tape is exposed to 240°F. or more of uniformly moist retort steam-heat pressure, dark stripes appear – indicating everything's OK. The tape gives positive proof of sterilization . . . a record which may be peeled off easily and filed with other production records. And, it can be written on with ink, pencil or crayon.

Tape No. 222 is just one of the many "Scotch" Brand Tapes designed to help you lower operating costs, speed production. Ask your "Scotch" Brand Tape Distributor to show you how, or write: 3M Co., 900 Bush Ave., St. Paul 6, Minn. Dept. IBC-21.

SCOTCH BRAND

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

"SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.

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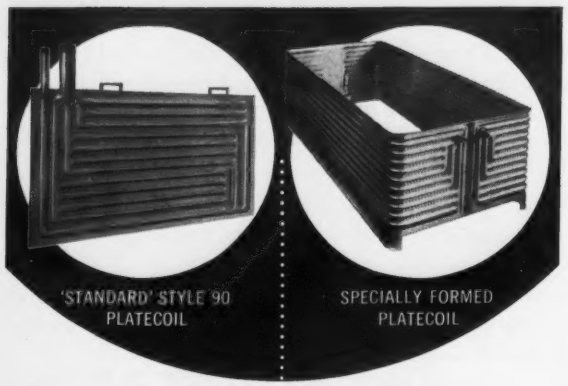


PLATECOIL®

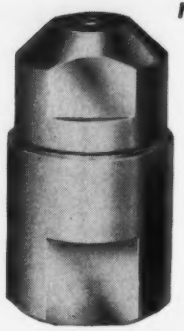
boosts efficiency in all kinds of tank and process heating and cooling — saves on engineering, fabrication and maintenance

PLATECOIL can be engineered and factory-fabricated to exact specifications. Available in a wide range of standard sizes, specially formed or fabricated units, and most weldable metals. Operating pressures up to 250 psig.

WRITE FOR NEW BULLETIN P53

PLATECOIL DIVISION, TRANTER MANUFACTURING, inc.
Lansing 9, Michigan

7581 on Reader Service Slip.



NOW FROM DELAVAN

SPRAY DRYING NOZZLES

WITH • certified performance

Delavan's new SDL and SDS nozzles provide an economical and uniformly reliable method of atomizing liquids for spray drying.

CERTIFIED PERFORMANCE
Delavan orifices and distributors are accurately calibrated and certified to operate within ±5% of rated capacity when tested on water at 1000 psi. All spray angles are certified to be within ±5° of rated spray angle.

EASY NOZZLE ASSEMBLY
No special tools or fixtures are required for the assembly or disassembly of Delavan nozzles.

WIDE CHOICE OF CAPACITIES AND SPRAY ANGLES
Delavan nozzles are available in a full range of flow rates and each flow rate can be furnished as standard in four different spray angles. Matching flow rate and spray angle in your dryer can often mean greater efficiency and a better end product.

Send For Your Free Copy Of Delavan's Full-Range Spray Drying Nozzles

DELAVAN Manufacturing Company
WEST DES MOINES, IOWA

7582 on Reader Service Slip.

Edlund...

PORTABLE ELECTRIC CAN OPENER

- Opens up to 1,000 cans per hour
- Weighs less than a #10 can
- AC-DC Heavy Duty Universal Motor
- UL approved
- Easy to clean
- Stores out of the way

Pays for itself in short order. In large or small volume, the Edlund Portable's speed and durability will save you enough time and money to pay its cost many times over. And you'll save moving of heavy cans because the Edlund opens them anywhere. It operates with complete efficiency in any production set-up . . . single can, assembly line, cans in the case. In actual kitchen tests, it has opened hundreds of thousands of cans and still performs perfectly. Pistol grip with trigger on/off switch allows absolute cutting control. Die-cast aluminum construction gives strength without weight. Equipped with hang-up bracket. Lid magnet optional.

Available from your Kitchen Equipment Dealer • *The Edlund Company, Burlington, Vermont*

7583 on Reader Service Slip.

best suited to their specific needs.

In addition to the lining, Vulcan recommended that VJI use an open-head lug-cover pail, fitted with a pull-out plastic pouring spout that made the container also a handy dispenser.

Results: Switch to lined steel pails has meant a 30 per cent over-all sales increase.

Further, some of VJI's large-volume customers — Armour, Oscar Mayer, Kraft,

Pails provide storage economy over bulky, crated jugs. Resilient plastic handles prevent surface-to-surface marring

John Sexton, Squire Dingee and a number of consumer seasoning processors — also have found it convenient to order part of their supply in pails rather than barrels.

As result, half of VJI's business now is done in pails — both to large- and small-volume processors.

This upsurge in business has been coupled with a downswing in shipping costs.

The shift from jugs to pails has stripped 60 lb from the weight of every 50 gal of nat-

Suppliers: Lined steel pails by Vulcan Containers Inc., P. O. Box 161, Bellwood, Ill.
7584 on Reader Service Slip.

Flexible plastic spouts for pails by Rieke Metal Products Co., Auburn, Ind.
7585 on Reader Service Slip.

ural seasoning shipped in the small containers.

Cost of the lined steel pails is slightly under $1.25 per pail, compared with an earthenware jug cost total of $1.45 — including 80 cents for the jug itself and 65 cents for the necessary wooden crate.

The real saving, however (in addition to the sizeable sales increase), is in eliminating need for the customer to return the empty jug, and for VJI to recondition and refill it. END

Polyethylene-saran film offers useful properties of both materials

A combined polyethylene-saran film, which makes full use of the outstanding properties of both materials, consists of polyethylene film, coated with .2 mil saran.

The polyethylene film is extruded from U.S. Industrial Chemical Co.'s PETROTHENE 200 resin.

The combination film provides a packaging material which has the economy and machinability of polyethylene, and the outstanding barrier properties of saran. Barrier properties and other food protection qualities approach those of the metal can.

Film has a high degree of oxygen impermeability and sharply reduced transmission of gases and vapors. The polyethylene-saran combination is odorless and completely

Polyethylene film goes through electronic treatment machine before being coated with saran. Electronic treatment alters surface characteristics of film

FOR A PERFECT RECORD OF RETORT PROCESSING

Hang a Cook-Chex tag on every basket before it goes into the retort and eliminate all guess-work when it comes out of the retort. On each Cook-Chex tag, a **chemically impregnated circle** turns from purple to green, to provide infallible proof of proper and complete "in-can" processing. Cannery inspectors approve and recommend Cook-Chex. Major packers all over the world use them to:

1. Eliminate wrong cook schedules.
2. Guard against "by passing" retorts.
3. Warn of any failure in retort processing.
4. Keep retort baskets in sequence.
5. Provide low-cost permanent records for cooking plants.

The cost of Cook-Chex protection is negligible . . . less than one cent for 75 cases of No. 300 cans.

SEND FOR FREE TEST SUPPLY TODAY

You'll receive a generous supply of Cook-Chex at no cost; send your name, title, and plant address to Dept. FP-2

ATI Aseptic-Thermo Indicator Company

11471 Vanowen Street • N. Hollywood, Calif.

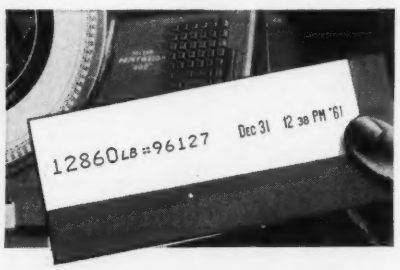
7586 on Reader Service Slip.

...When Management Puts The Spotlight on WEIGHING

PRINTWEIGH® RECORDS: a Major Cost Control Tool

Materials become money . . . on your scales. Weight records directly affect costs, quality control, inventories and customer billing. That's why it pays to put the spotlight on weighing . . . and make sure you have the right TOLEDO scale at every weighing point.

A close look at weighing is especially called for if you've made changes in plant layout, materials handling methods, or inventory controls. In any of these areas, scales that don't fit the job can bottleneck operations, infect weight records with costly errors.



Complete Printed Weight Records with TOLEDO PRINTWEIGH "400"

Prints complete weight records on tickets, sheets or strips. Transmits weight data to remote locations where it is recorded by office machines, if desired. Ask for Bulletin 2017.

We'll be glad to help you evaluate weighing efficiency in your operations. A few minutes at each weighing station will put the spotlight on scale capacity and location, dial visibility, platform size and height and other important factors. Send for Bulletin 2036. TOLEDO SCALE, Division of Toledo Scale Corporation, Toledo 12, Ohio.

(Toledo Scale Co. of Canada Ltd., Windsor, Ont.)

SERVICE Factory-Trained 300 Cities

TOLEDO®

Headquarters for Weighing Systems

7587 on Reader Service Slip.

unaffected by oils and fats whether vegetable, animal or mineral.

The gas transmission rate is 0.3 to 0.7 cubic centimeters of oxygen per 100 square inches over a 24-hour period per one atmosphere of pressure, using ASTM test D-1434-56-T.

Prices for gauges from 1 to 4 1/2 mils, expected to be the most widely used types, range from .0735 cents per 1000 square inches for the 1-mil film, to .174 cents per 1000 square inches for the 4 1/2-mil film.

Prices per pound for the film range from $1.59 for the 1-mil film, down to $1.09 for the 4 1/2-mil film.

Supplier: Plastoid Corporation, 42-59 24th Street, Long Island City 1, New York.

7588 on Reader Service Slip.

Bacon-packaging film is priced 15 to 56% less than competitive wraps

A packaging film, specifically developed for sliced bacon, will provide a savings of from 15 to 56% over any other bacon-packaging film now on the market.

Known as Vitafilm 75WNF-1, the product, which complies with the Food Additives Amendment, is priced at .0255 cents per thousand square inches, or .73 cents per pound.

The film offers exceptional clarity and non-fogging features, resulting in maximum visibility of the product. It also offers excellent machineability.

A positive heat seal, obtained with the film, will not strip open under customer handling. Film provides a smooth, tight wrap to retain product flavor and freshness through normal merchandising channels.

To be marketed in 500-pound quantities, the film is a 75-gauge material, yielding 28,600 square inches per pound. It is available in rolls wound on a 6-inch core with a 9-inch outer diameter in any widths required for bacon packaging.

Supplier: Goodyear Tire & Rubber Co., Akron, Ohio.

7589 on Reader Service Slip.

Yes, that's right; the PUTMAN PUBLISHING COMPANY publishes 2 distinctly different magazines to serve one industry —each serving a distinctly different area of the fabulous food industry

FOOD PROCESSING

To help make better products

FOOD BUSINESS
MANUFACTURERS / SUPERMARKET CHAINS

To help sell more products

Together, FOOD PROCESSING and FOOD BUSINESS represent "total service" to your industry . . . the food industry, America's Number 1 business activity. Each magazine, with its specialized editorial staff, presents to its readers the most important developments, the trends and suggested solutions to problems facing your industry.

Each staff is directed by these men of experience:

Howard P. Milleville
Editor,
FOOD PROCESSING

Frank J. Cogan
Editor,
FOOD BUSINESS

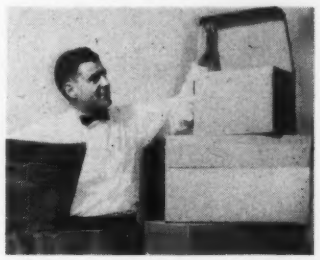
Together, they say: "If we can help you directly, please let us know."

PUTMAN PUBLISHING COMPANY
Putman Publishing Building • 111 East Delaware Place • Chicago 11, Illinois
publishers of: CHEMICAL PROCESSING • QUEST . . . for tomorrow
What's NEW in Plant-Engineering EQUIPMENT

Improves boxes for shipping, storing ice-packed foods

Features: Paperboard boxes, developed for shipping and storing ice-packed chicken, can also be used with other food products such as red meats and fish.

Containers are unaffected by water resulting from melting ice. Moreover, they retain good stacking ability because of high top-to-bottom strength.



Because of better insulation characteristics, paperboard boxes, right, hold temperature 2-5 degrees lower than wooden box, left

Water from melting ice passes out of boxes through four weep holes. When boxes are stacked, water rolls down outside of lower boxes and therefore does not contaminate contents.

Description: Solid-fibre paperboard containers for chicken are 20 by 12 by 12 in., weight 4 lb and hold 60 lb.

Boxes are made in various sizes and shapes and with various closures.

Supplier: The Mead Corporation, 4400 Marburg Ave., Cincinnati, Ohio

7590 on Reader Service Slip.

Care and cultivation of cellophane

Nine simple rules for storing and handling cellophane, outlined in new Avisco brochure, enable users to check proper methods, which, if followed, assure that the film is maintained in prime condition for optimum packaging performance.

7591 on Reader Service Slip.

The big PLUS SERVICE + EXPERIENCE RESEARCH PERFORMANCE in Oakite

New Oakite SUPER-DET detergent cleans super-fast, rinses super-clean

This new detergent cuts cleaning time two ways! First, it gives superior wetting-out action: penetrates and loosens stubborn soil in extra-fast time. Second, it rinses without streaking, leaves no dulling film, no "missed spots" that require re-doing.

SUPER-DET is versatile, too. Sweeps through fats, grease, baked-on proteins, syrup, wax, dairy residues and similar food industry soils. Yet, it's completely safe on every type of metal, paint, rubber, plastic—even the most sensitive hands.

The big PLUS in Oakite

Continuing product development is only one of the big plus factors you get with Oakite materials. Others include: the personal assistance of the Oakite man, backed by the vast experience of the entire Oakite organization . . . sanitation methods coordinated to save man-hours and material . . . cost-cutting equipment . . . materials *guaranteed* to perform. Ask your local Oakite man to demonstrate SUPER-DET in your own plant. Or, write for Bulletin B-7139. Oakite Products, Inc., 26G Rector Street, New York 6, N. Y.

OAKITE

over 50 Est. 1909 SCIENCE years' leadership in industrial cleaning

Technical Service Representatives in Principal Cities of U. S. and Canada

7592 on Reader Service Slip.

Handling time is reduced and floor space is conserved by overhead hose storage

Automatic reel keeps hose off floor, ready to use

EXPANSION plans at the Peter Eckrich & Sons packing plant in Ft. Wayne, Indiana included the installation of seven water stations. Hose coiled on the floor or crossing passage ways would interfere with proposed fork truck traffic. It would be necessary to keep hose off of the floors to improve sanitary standards. Since coiling on wall hooks had not been satisfactory, it was decided to use reels.

Seven spring loaded retracting reels were installed. Each reel was mounted overhead and holds 60 feet of 1 inch OD hose.

After a year of operation it was found that hose handling time had been substantially reduced by automatic rewinding. With hose stored overhead, both sanitary and safety conditions were improved. Hose wear and damage were greatly reduced.

Overhead storage left larger floor space in the production rooms. The reels required no maintenance of any kind during the first year of operation. END

Supplier: Clifford B. Hannay & Son, Inc., Westerlo, New York.

7593 on Reader Service Slip.

Presents wire cloth specifications

Revised catalog includes specifications for wire cloth and screen products which may be needed for occasional replacement in shakers, graders, sifters and similar equipment. The catalog is composed of four parts which have been bound in loose leaf form by the Cleveland Wire Cloth & Mfg. Co.

Part 1—describes industrial

wire cloth and screen. Outlines specific data needed when ordering woven wire cloth and screen.

Part 2—contains specification tables and illustrations of wire mesh cloth from 1 inch, center to center, through 250 mesh.

Part 3—provides specifications and illustrations for square opening cloth from 4 inch openings to ⅛ inch openings.

Part 4—gives reference data such as screen characteristics, weight conversion tables, U.S. Standard Sieve Series, square to round equivalents and decimal equivalents.

7594 on Reader Service Slip.

Gear drive eliminates separate couplings

A right-angle gear drive is designed to eliminate the need for separate couplings, supports etc.

It is designed to meet the needs of many applications requiring power transmission at right-angles with a 1:1 ratio. Suitable for use on packaging equipment, turn tables, conveyors, rollers and similar equipment.

The assembly consists of gears and a housing which are mounted on the drive and

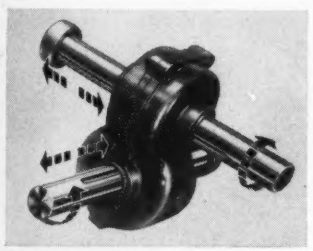
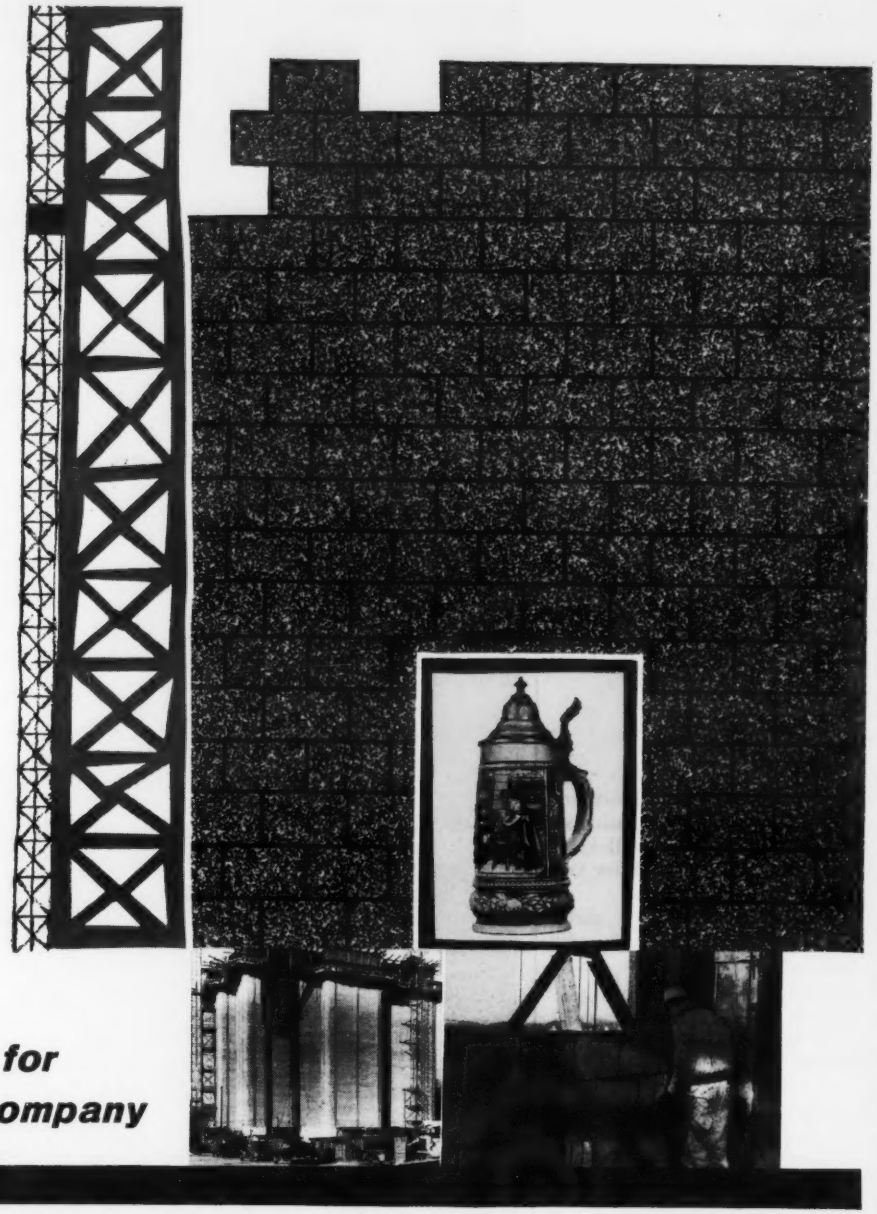


Illustration shows a right-angle gear drive mounted on equipment shafts

driven shafts. Thus, the need for attaching elements are eliminated and alignment problems usually encountered with right-angle drives are minimized.

Supplier: Tol-O-Matic, Inc., 246 Tenth Avenue South, Minneapolis 15, Minnesota.

7595 on Reader Service Slip.



FOAMGLAS®
Insulation works for Miller Brewing Company

EVIDENCE: Ten years ago Miller Brewing Company, Milwaukee, Wisconsin, built Stockhouse "I," a 12-story refrigerated building with the capacity to hold 260,000 barrels. They relied on 1,000,000 bd. ft. of FOAMGLAS Insulation on roof, walls, floors and ceilings to hold the required 28°F. temperatures inside.

A unique property of the material prompted the choice of FOAMGLAS . . . its rigidity. Because of this great rigidity and strength, Miller was able to construct free-standing walls of FOAMGLAS, begin operations in the warehouse and complete their outer masonry wall later.

Additionally, FOAMGLAS is weather-proof, dimensionally stable, incombustible, rot and vermin-proof.

The full line of FOAMGLAS includes products for insulating piping, tanks, equipment and underground applications. Write for a Case History Fact Sheet on Miller Brewing, and a copy of our General Industrial Insulation Catalog: Pittsburgh Corning Corp., Dept. FP-21, One Gateway Center, Pittsburgh 22, Pa. In Canada: 3333 Cavendish Blvd., Montreal, Quebec.

Pittsburgh Corning makes available a complete line of accessory materials for use with FOAMGLAS. Write for Data Sheets.

PITTSBURGH PC CORNING

7596 on Reader Service Slip.

Spray on lubricant stands 500 F. temp

A fluorocarbon anti-stick agent is sprayed from an aerosol can. It deposits a low-friction dry film which is an effective lubricant on conveyors, chutes, can slides, gears and machine parts. Spray application to wood, metal, leather and plastics will produce a low-friction slick surface.

Dry film surfaces have a coefficient of friction which is as low as .07. It is chemically inert, insoluble and thermally stable to over 500 F.

Packaged in 6 oz. aerosol spray cans and trade named, "Rulon".

Supplier: Dixon Corp., Bristol 7, R. I.

7597 on Reader Service Slip.

Cold-proof clothing fits all sizes

Insulated freezer garment for the frozen food industry is desigend to fit all size workers — small, medium and large.

All purpose, heavy duty, lightweight garment, No. 60, has an adjust-to-size snap closure which provides the fits-all feature.

Protective garment is guaranteed warm and comfortable

Freezer garment protects against cold for the frozen food industry

in below zero temperatures. It utilizes Du Pont's air light Dacron Fiber-Fill insulation.

Supplier: Refrigiwear Clothing Co., 202 E. 29th St., New York 16, New York.

7598 on Reader Service Slip.

This man knows STYROFOAM® and low-temperature installation, too

HE'S AN APPROVED INSULATION CONTRACTOR, typical of the special group of low-temperature insulation contractors that Dow has selected for their outstanding experience and abilities in installing Styrofoam. Each Approved Insulation Contractor listed below has a reputation for top-quality workmanship. All 103 of these firms are thoroughly familiar with Dow recommendations for installing Styrofoam, and they are committed to follow these recommendations on every job.

Consult an Approved Insulation Contractor when you're planning your next freezer or cooler room. The superior *insulating* performance of Styrofoam, teamed with the superior *installing* performance of an Approved Insulation Contractor, is your assurance of a top-quality job.

Styrofoam is a registered trademark of The Dow Chemical Company. It is applied only to the homogeneous expanded polystyrene made according to an exclusive Dow process. Styrofoam brand insulation board is available only from Dow and its authorized representatives.

SAVE THIS LIST FOR REFERENCE

For the best low-temperature installation, get in touch with the Approved Insulation Contractor near you.

ALABAMA
Birmingham
Badham Insulation Company, Inc.
Bonitz Insulation Company of Alabama

ARIZONA
Phoenix
Barrett & Homes
Tucson
Arizona Insulation Company, Inc.

ARKANSAS
Little Rock
J. C. Lewis Company

CALIFORNIA
Fresno
Fiberglas Engineering & Supply Div.
Los Angeles
Armstrong Contracting & Supply Corp.
Fiberglas Engineering & Supply Div.
Los Angeles Cork Company
Industrial Building Materials, Inc.
North Sacramento
Fiberglas Engineering & Supply Div.
San Francisco
Fiberglas Engineering & Supply Div.
Peterson-Cobby Insulation, Inc.
San Diego
Fiberglas Engineering & Supply Div.

CONNECTICUT
Bloomfield
W. L. Walker Co.

COLORADO
Golden
Denver Lining Co.

FLORIDA
Haines City
R-S Industrial Insulation
Jacksonville
Insulation Contractors, Inc.
Miami
L. L. Jackson, Inc.
Tampa
Gulf Coast Insulation Company, Inc.
Insulation Contractors, Inc.

GEORGIA
Atlanta
Asbestos Insulation Co.
North Brothers, Inc.

IDAHO
Boise
Fiberglas Engineering & Supply Div.

ILLINOIS
Chicago
Cork Insulating Company
East Moline
Low-Temp Insulations, Inc.
Peoria
Sprinkmann Sons Corp. of Ill., Inc.

INDIANA
Indianapolis
Indiana Asbestos Co., Inc.
South Bend
Midland Engineering Company, Inc.
Evansville
General Insulation Co.

IOWA
Des Moines
Low-Temp Insulations, Inc.

KANSAS
Kansas City
Mid-Continent Ind. Insulation, Inc.
Preston Refrigeration Company

KENTUCKY
Louisville
Cardinal Industrial Insulation, Inc.

LOUISIANA
Baton Rouge
McCarty-Branton, Inc.
New Orleans
McCarty-Branton, Inc.
Shreveport
Taylor Contracting & Supply Co., Inc.

MAINE
Lewiston
Northeastern, Inc.

MARYLAND
Baltimore
F. V. Vleck Company
The Wallace & Gale Company
Cheverly
Frank Heintze Company

MASSACHUSETTS
Waltham
Atlas Insulation Company, Inc.
Walpole
Allied Cork, Inc.
West Springfield
A. L. Remington Co.

MICHIGAN
Bay City
Industrial Insulation, Inc.
Detroit
Chrysler & Koppin Company
Grand Rapids
Tony Batenburg Insulation Company

MINNESOTA
Minneapolis
General Adhesives Products Co.
Hauenstein & Burmeister, Inc.
Insulation Sales Company

MISSISSIPPI
Jackson
Munford Engineering Company

MISSOURI
Joplin
Joplin Cement Company
St. Louis
Mid-Continent Ind. Insulation, Inc.
Springfield
Southwestern Insulation & Material Co.

NEBRASKA
Omaha
Low-Temp Insulations

NEW JERSEY
East Orange
Woolsulate Corporation

NEW MEXICO
Albuquerque
Fiberglas Engineering & Supply Div.
Mountain States Insulation Co., Inc.

NEW YORK
Albany
Cork Insulation Contracting Company
Buffalo
The Jewett Refrigerator Company, Inc.
Forest Hills
Charles M. Trojahn
New York City
Eastern Cold Storage Insulation Co., Inc.
Globe Cork Insulation Company
Martin & William Smith, Inc.
Syracuse
The Knudsen Company, Inc.
Utica
George Weisenberger Company, Inc.

NORTH CAROLINA
Asheville
Bonitz Insulation Company of Carolina-Tennessee, Inc.
Goldsboro
Bonitz Insulation Company of Eastern Carolina, Inc.
Greensboro
Bonitz Insulation Company, Inc.

OHIO
Cincinnati
Breeding Insulation Company
Cleveland
Ross Insulation, Inc.
Dayton
C. W. Booher & Company
Toledo
Service Products, Inc.
Columbus
Service Products, Inc.

OREGON
Portland
E. J. Bartells Company, Inc.
Fiberglas Engineering & Supply Div.

PENNSYLVANIA
Catasauqua
Tri-City York Co., Inc.
Hummelstown
David R. Trout Associates, Inc.
Kingston
Culp Industrial Insulation Company
McKees Rocks
George V. Hamilton, Inc.
Telford
Walter R. Dorn Estate

RHODE ISLAND
Providence
Rhode Island Covering Company

SOUTH CAROLINA
Columbia
Bonitz Insulation Co. of S. C.

TENNESSEE
Memphis
Chris Fiedler Company, Inc.
Nashville
Young Sales Corporation

TEXAS
Amarillo
Young Sales Corporation
Dallas
Southwest Cold Storage Vault Company
Houston
Gulf Insulating Corporation
San Antonio
General Supply Company

VIRGINIA
Norfolk
C. C. Foreman & Sons, Inc.
Richmond
Ralph Lampie
Roanoke
Whitescarver Engineering Company

WASHINGTON
Seattle
Associated Asbestos, Inc.
Fiberglas Engineering & Supply Div.
Spokane
Associated Asbestos, Inc.
Fiberglas Engineering & Supply Div.
Yakima
Reese & Sons

WEST VIRGINIA
Charleston
Asbestos & Insulating Company

WISCONSIN
Green Bay
Northwestern Asbestos & Cork Insulation Co.
Madison
Industrial Material Company
Manitowoc
Northwestern Asbestos & Cork Insulation Co.
Milwaukee
Sprinkmann Sons Construction Co.
Merrill
Taylor Insulation Company, Inc.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

7599 on Reader Service Slip.

Automatic steam mixing valve is self-contained

The Meynell steam and water mixing valve is designed for use at water stations where water and steam are mixed to produce hot water.

The mixer gives a steady flow of hot water over a wide range of temperature which is adjustable up to 200 F. Internal mechanism is designed to automatically shut-off steam in the event of water failure or interrupted discharge. The bonnet cover is rotated to change temperature adjustment of the mechanism.

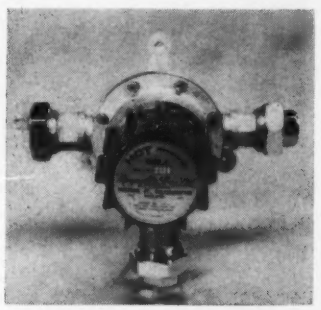


Illustration shows a ½ inch model steam mixing valve which is 7½ inches in diameter

Equipment is made in several sizes to match pipe sizes ranging from ½ inch to 1½ inch. It is designed for water and steam pressure up to 150 psi or any lower pressure without need for separate pressure regulating valves.

Crown diameters range from 7½ inches for the small unit up to 10⅝ inches for the largest unit.

Supplier: A. P. V. Company, Incorporated, 137 Arthur St., Buffalo 7, N.Y.

7600 on Reader Service Slip.

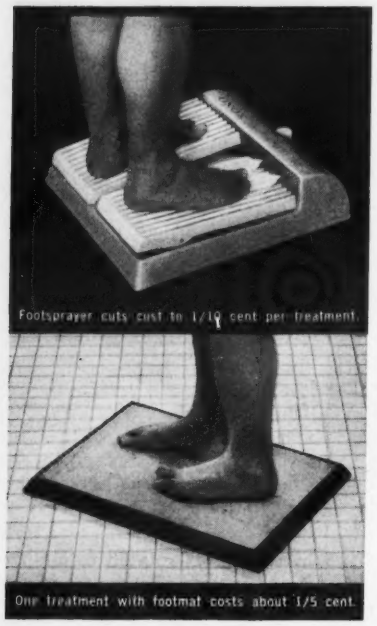
GET CURRENT

LITERATURE

A quick reference to technical literature available this month is given in the classified listing of new literature, page 120 of this issue.

STOP

athlete's foot with ONOX® skin toughener



Skin specialists say the best way to prevent Athlete's Foot is to increase the skin's resistance to fungus growth*. That's what Onox does. It keeps your feet as tough and healthy as your hands. Used by clubs, schools, and over 70% of the largest U. S. companies for the treatment and prevention of Athlete's Foot.

**American Pub. Health Assoc., Oct. 15, 1954*

● **TRY ONOX 60 DAYS AT OUR RISK**
If not satisfied, you owe us nothing. Full details on request.

● **FREE FOLDER**
Write for "Facts on Athlete's Foot" including medical opinions.

ONOX INC.
Dept. N, 121 Second St., San Francisco 5, Calif.
Warehouses: Murray Hill, N. J. • Cleveland
New Orleans • Newark, Calif.

7601 on Reader Service Slip.

Presents details on heating coils

Catalog No. 1710, available from Westinghouse Electric Corporation, describes in 24 pages a variety of steam heating coils suitable for use in dryers, space heaters and other food plant applications.

It includes many drawings, construction details, piping diagrams, installation procedures and photographs.

A helpful set of tables and instructions shows how to calculate final air temperatures that will be developed under various conditions.

7602 on Reader Service Slip.

Lining for tanks holding hot liquids

A plastic coating material being used in the sugar industry may offer advantages for other processors.

This coating has 5 years history as a lining for tanks holding 180-190 F deionized water. It has demonstrated good resistance to other solutions such as brine, caustics, acids and some solvents.

It can be applied to tank surfaces by brush, roller or spray equipment. Curing is accomplished at room temperatures. Curing with heat application will reduce curing times.

The chemical and physical properties of Plasite No.-7155 are presented in a 4 page bulletin available from the Wisconsin Protective Coating Corp.

7603 on Reader Service Slip.

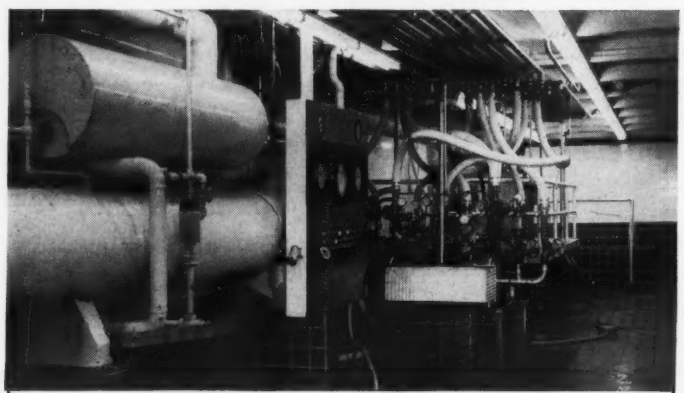
Extensive variety of sanitation supplies

A 120 page catalog contains an extensive presentation of sanitation supplies and equipment.

It illustrates and describes almost every usual sanitation and cleaning requirement that would be needed in a plant, office or warehouse.

Free copies of the Sectionalized Index Catalog are available from the Lien Chemical Company.

7604 on Reader Service Slip.

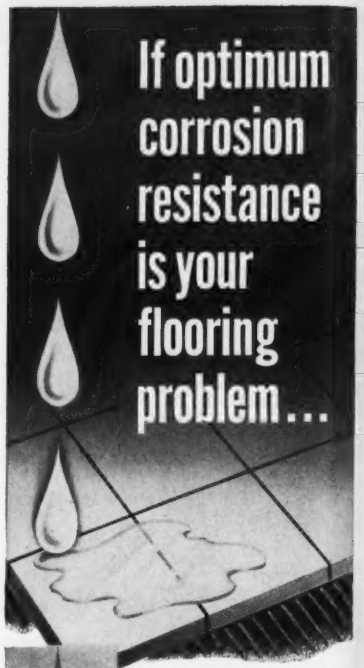


Quick hose couplers save time

PHOTO shows how a Western Canadian brewer has used quick couplers with plastic hose to facilitate making numerous changes at a filter head. This method of making connections proved so useful that it has been applied extensively throughout the plant.

Other illustrations of applications used by the Canadian brewer are in a 4-page catalog No. F-10-R, available from the OPW-Jordan Corporation.

7605 on Reader Service Slip.



U-poxy *is your answer!*

Revolutionary New Epoxy Grout and Setting Compound Makes Joints as Impervious to Corrosion as the Tile Itself!

Ideal for dairies, packing plants, canneries, bakeries, breweries, distilleries, food processing plants – wherever corrosives are encountered. Forms a dense, tight joint of phenomenal strength. For new installations or re-grouting existing floors. Only water is needed for clean-up. Details in Sweet's or write for a descriptive catalog.

Pioneers in Industrial Research Since 1881

THE UPCO CO.
4805 Lexington Ave Cleveland 3, Ohio

7606 on Reader Service Slip.

Wide assortment of hose clamps and couplings

Hose clamps and many types of couplings are fully described in a 44 page catalog.

Complete dimensional and engineering data are provided on all fittings. A section is devoted to each of the following fittings: hose clamps, flexible pipe joints, pipe flanges and couplings, and temporary patch clamps to repair pipe leaks.

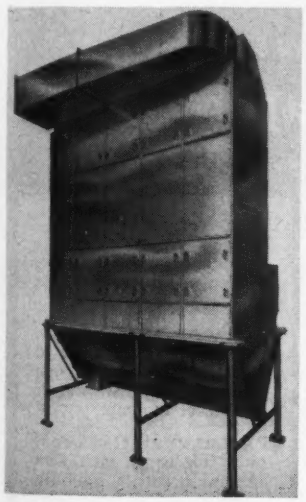
Free copies of No. 803 catalog are available from the Aeroquip Corporation.

7607 on Reader Service Slip.

Dust collector has automatic cleaning

An automatic dust collector features sectionalized modular design and self cleaning cycles.

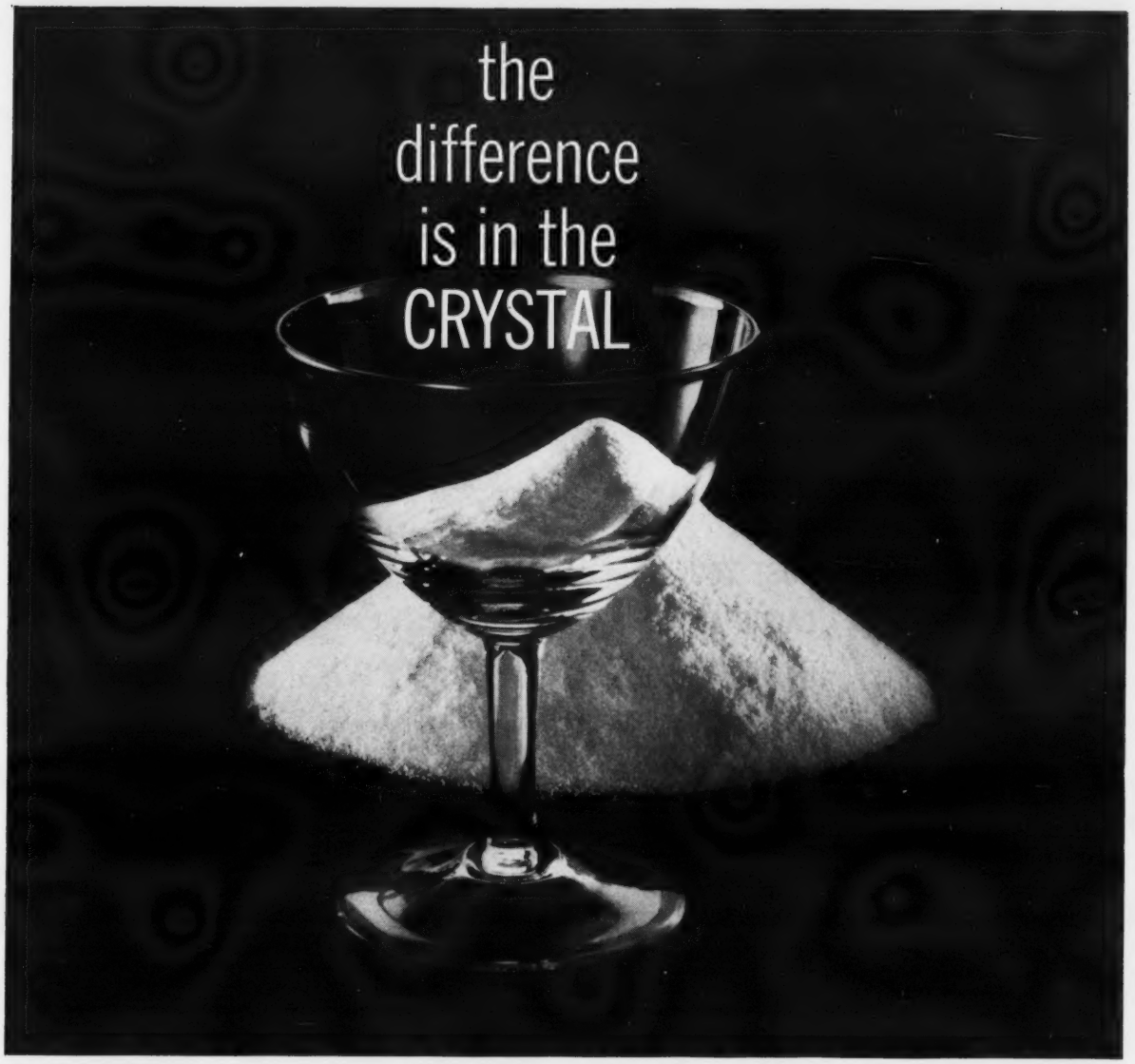
Modular sections permit adaptation to varied space and dust collection requirements. Operating and cleaning cycles are automatic and alternate



Automatic dust collector performs operating and cleaning cycles at the same time

cycles are used in each section so that continuous operating and cleaning are accomplished without interruption.

It cleans itself in three ways: 1) Periodic shaking of cloth filter tubes combined with reverse air flow through the filters. 2) Continuous re-



NEW DIVERSOL® CX®
with ARODYNE* Patent Pending

- bactericide
- disinfectant
- cleaner

For the first time in chemical history Diversey research has produced a completely soluble crystalline sodium hypochlorite with new wetting action incorporated as a part of the crystal!

New DIVERSOL CX with ARODYNE offers faster penetration—overall a more effective action. This powerful bactericide-disinfectant gives superior performance in terms of speed and effectiveness.

Ask your local D-Man to demonstrate DIVERSOL CX with ARODYNE, or write for full details to the Diversey Corporation, 1820 West Roscoe Street, Chicago 13, Illinois

**The Diversey Corporation's trade name for an active ingredient*

DIVERSEY®

Another DIVERSEY First . . . through Research

7608 on Reader Service Slip.

moval of collected material by a screw conveyor at the base. 3) Discharge of collected material through a rotary feed valve.

Eleven models of the collector are offered, ranging from 2 to 12 sections. Each section is 5 feet deep and 15½ feet high. Models vary in width from 4′ 8″ to 21′ 10″ depending on the number of sections employed. Units are shipped knocked down for assembly on the job.

Up to 58,000 cfm of air can be handled through a 12 unit model and air-to-filter ratios vary from 5:1 to 25:1 depending on the application.

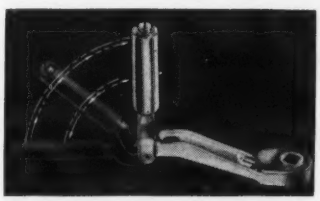
Supplier: Automatic Collector Div., Torit Manufacturing Co., 1131 Rankin St., St. Paul 16, Minn.

7610 on Reader Service Slip.

Special wrenches for impossible jobs

Hinged and detachable handles are featured in special socket wrenches for situations where ordinary tools frequently fail to be adaptable to the job.

In operation, the hinged handle allows fast hand cranking action combined with extra handle length for final tightening. When not in use the wrench folds into a compact unit for storage. Detachable handles, either threaded or pinned, can be quickly removed to fit into a kit.



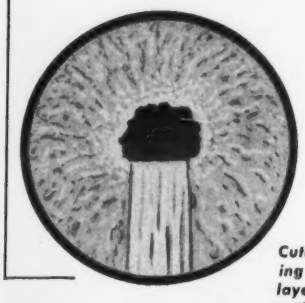
Above view shows how hinged handle allows fast hand cranking action as well as extra handle length

In addition to folding handles, long, short, double, bent or curved handles available.

Supplier: Lowell Wrench Co., 97 Temple St., Worchester 4, Mass.

7611 on Reader Service Slip.

why let little drops of GREASE

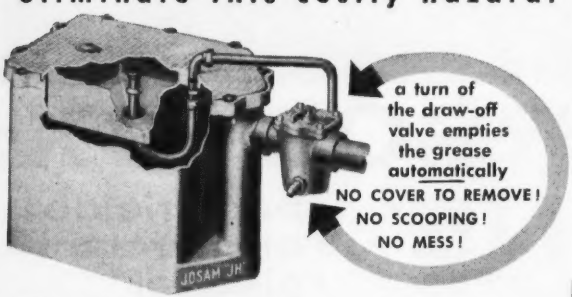


COST YOU A LARGE AMOUNT OF MONEY?

Cutaway view of pipe showing how grease builds up layer upon layer until almost entire waste line is clogged.

Josam SERIES "JH" GREASE INTERCEPTORS

eliminate this costly hazard!



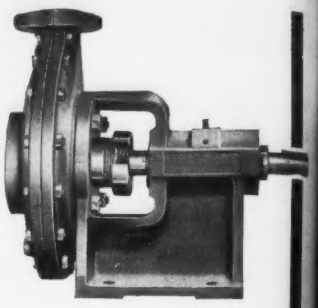
Why wait until greasy wastes cause trouble . . . expense and inconvenience . . . when it's so easy to prevent? With the Josam Series JH Interceptor you not only reclaim over 95% of the grease in waste water but, at the "turn of a valve" you automatically draw off the grease into convenient containers.

No other interceptor provides these features. Get complete details by writing for Manual "JH" today.

JOSAM MANUFACTURING CO.
General Offices and Manufacturing Division • Michigan City, Ind.
REPRESENTATIVES IN ALL PRINCIPAL CITIES
West Coast Distributors
JOSAM PACIFIC CO.
765 Folsom Street San Francisco 7, Calif.
JOSAM PRODUCTS ARE SOLD THROUGH PLUMBING SUPPLY WHOLESALERS.
Manufacturers and Representative in Mexico—HELVEX, S. A., Mexico City

7609 on Reader Service Slip.

New AMPCO® Elastomer- and Rubber-lined Pumps



cut cost of pumping corrosive liquids *and abrasive slurries!*

Will not affect taste or color.

Will not introduce impurities into the material being pumped.

Eight sizes available from stock through your Ampco Pump Distributor.

AMPCO AMPCO METAL, INC.

WRITE FOR BULLETIN P-6 TODAY!

DEPT. 229B, MILWAUKEE 1, WISCONSIN
WEST COAST DIV. HUNTINGTON PARK, CALIF.
SOUTHWEST DIV. GARLAND (DALLAS COUNTY) TEXAS

P-44

7612 on Reader Service Slip.

Save Selling Time With Paperlynen Caps

They put the selling message *up front* as well as provide approved sanitary headcovering that shields head from odor and dust.

PAPERLYNEN CAPS are sized like a hat — have patented adjustable headband that retains headsize of wearer for life of the cap.

PAPERLYNEN CAPS cost only few cents each with special printing on both sides. *Stock Caps with overseas stripe immediately* available at distributors from coast to coast.

New for women food handlers — approved sanitary hairnet & headband combination. Lightweight, comfortable.

PALCONET

Want FREE Samples — Clip Adv & attach to letterhead

THE PAPERLYNEN COMPANY
555 West Goodale Street Dept. H-2
Columbus 16, Ohio

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AMERICA'S LEADING MANUFACTURERS, PROCESSORS AND LABORATORIES ACCLAIM THE **DOUBLE-SEAL GUARANTEED SAFETY** & PROTECTED EFFICIENCY OF

PROTECTIVE'S PLASTIC LINERS

"DOUBLE WELD" POWER SEAL* (ROUND BOTTOM)

"TWIN SURE" DOUBLE SEAL* (STRAIGHT BOTTOM)

FOR STEEL DRUMS, FIBRE CONTAINERS, CARTONS AND BOXES
ALL SIZES! ALL STYLES! POLYETHYLENE AND ALL FLEXIBLE FILMS

Nothing is as "safety-sure" as Protective's Liners and Bags. Our skilled engineers are ready to help solve your packaging problems. Samples on request.

PROTECTIVE LINING CORP 601-39TH ST., BROOKLYN 32, N.Y. · ULSTER 4-3838

☐ Send "FACTS and FIGURES" MANUAL

Please send us prices and information on:

DRUM LINERS ☐ Round Bottom ("Power seal") ☐ Straight Bottom ("Twin sure seal")

Drum I.D. ..... Drum Hgt. ..... Quantity .....

Material packaged is—Solid ..... Semi solid ..... Liquid .....

CARTON LINERS

Carton size is—L ..... x W ..... x H .....

Material packaged is—Solid ..... Semi solid ..... Liquid .....

BAGS

Bag size required is—W ..... x L .....

Material packaged is—Solid ..... Semi solid ..... Liquid .....

Firm .....

Address .....

By .....

FIRST CLASS PERMIT NO. 25,301 BROOKLYN, N. Y.

BUSINESS REPLY MAIL

POSTAGE WILL BE PAID BY:

PROTECTIVE LINING CORPORATION
601-39TH ST.,
BROOKLYN 32, N.Y.

GET OUR LOW, LOW PRICES!
LOOK TO PROTECTIVE LINING
WORLD'S LARGEST
MANUFACTURER
OF PLASTIC LINERS—FOR
THE BEST TESTED AND
BEST PROVEN
PROTECTIVE PACKAGING!

Remember

DOUBLE SEAL GUARANTEED
SAFETY IS AN EXCLUSIVE
FEATURE ONLY WITH PROTE

Nobody can beat our prices, quality and skill know-how! M
have tried to imitate our standards—no one has succee

PROTECTIVE LINING CORP. 601-39TH ST., BROOKLYN 32, N.Y. · ULSTER 4-3838

For more information on product at left, circle 7614 . . . see information request blank opposite last page.

Submersible motor for deep immersion

A deep immersion electric motor is designed for close-coupling to centrifugal pumps that are to operate in deep water, oil or other liquid.

The motor housing is filled with oil and sealed by a neoprene diaphragm with a built-in O-ring. The diaphragm

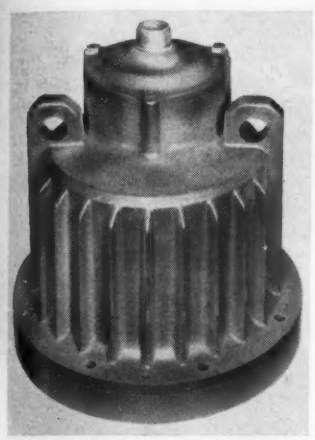


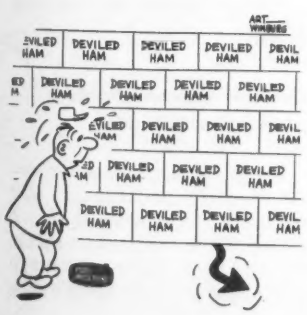
Illustration shows the exterior motor housing, electric conduit connector at the top, and pump mounting holes around the flange

completely encircles the motor base and flexes slightly to equalize pressure differences.

It is provided with a universal mounting flange which makes fitting to most standard pumps possible. Available in sizes from ½ through 40 hp.

Supplier: Reliance Electric and Engineering Co., 24701 Euclid Ave., Cleveland 17, O.

7615 on Reader Service Slip.



UNMATCHED for

• SAFE • EASY • ECONOMICAL

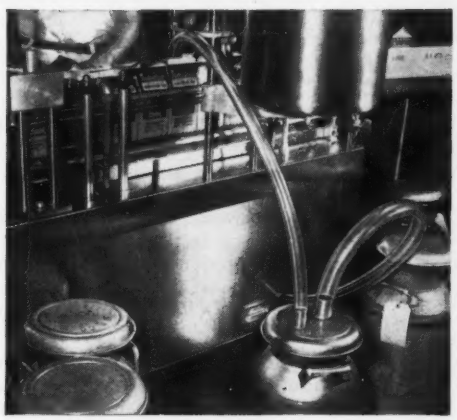
Piping of Liquid Foods and Beverages

Combining the non-contaminating properties of stainless steel . . . the flexibility of rubber . . . the clearness of glass . . . and the toughness of leather, Tygon plastic Tubing, Formulation B44-3, has no peer in food handling applications.

Completely odorless, tasteless and non-toxic, Tygon B44-3 is safe for use with even the most flavor-sensitive foods and beverages.* With a surface smoothness far greater than that of either rubber or stainless steel, Tygon will not trap minute food particles which foster bacterial growth. Tygon can be quickly cleaned, is unaffected by all common cleaning agents, and can be sterilized with steam (open-end flushing) or bactericides.

Available in over 65 standard sizes up to 4" I.D., flexible Tygon can be used with a wide range of fittings, can be put into service quickly and inexpensively.

**For processed milk and milk products, use Formulation B44-4*



Compare the unique advantages of Tygon B44-3 with any other piping medium and you'll see why more and more bottlers and food processors are standardizing on Tygon. Write for your free copy of informative Bulletin T-100 . . . today!

Plastics and Synthetics Division

U. S. STONEWARE

AKRON 9, OHIO

Tygon is a registered Trade-Mark of The U. S. Stoneware Co.

416F-1

7616 on Reader Service Slip.

SAVE SPACE, SAVE WEIGHT,

SAVE MONEY!

There's a *difference*, as you can see! The 10-groove D-section sheave in the foreground is replaced with the narrow 8-groove 5-V Dyna-V sheave on the line shaft. *Same power*, in a far more compact installation, with a $477 difference in price. And big future savings in belt replacement costs!

Everyone is going Dyna-V! Thousands of installations reveal that Dyna-V performance is *even better* than promised when we first introduced this new compact drive. In medium and high horsepower ranges, savings go as high as 30%!

Dyna-V can handle 3 times as much power in the same space. Dyna-V Sheaves decrease shaft overhang, increase bearing life. And Dyna-V Belts possess *all* premium qualities. Conditions requiring static conductivity or resistance to oil, moisture and heat are met by Dyna-V's one grade—the finest. Ask your Dodge Distributor, or write us for complete drive bulletin. Dyna-V Drives are available for capacities from 1 to 1500 hp.

Dodge Manufacturing Corporation, 2400 Union St., Mishawaka, Ind.

The Products with the Pluses...

DODGE

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge he can give you valuable assistance on new cost-saving methods.

7617 on Reader Service Slip.

Five fogging nozzles sanitize large tanks

A five-nozzle sprayer creates a turbulent circulation of sanitizing fog for use in large tanks.

The spray head is inserted into manholes or other suitable openings. Chemical sanitizer solutions are fed to the unit through one of the two pipes. Compressed air is supplied to the unit through the second pipe.

Air and water pressures as low as 20 psi will produce finely atomized sprays.

Various units available offer a choice of spray capacities ranging from one gallon

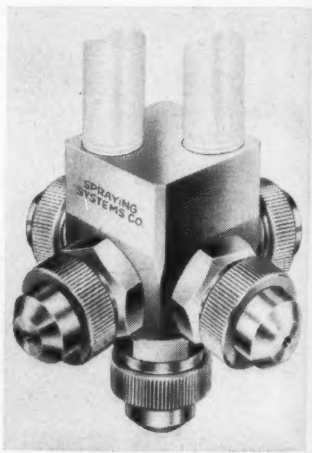


Illustration shows a five nozzle spray head which is supported by the pipes that feed air and sanitizer

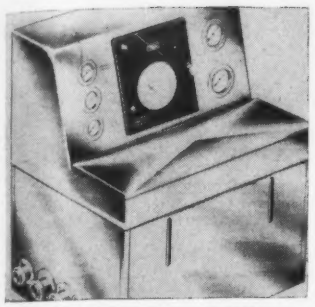
to over 200 gallons per hour. Assemblies are identified as, No. 8650 Pneumatic Atomizing Assembly, and manufactured of stainless steel or nickel plated brass.

Supplier: Spraying Systems Company, 3213 Randolph Street, Bellwood, Illinois

7618 on Reader Service Slip.

Control cabinet holds automatic CIP unit

Complete apparatus for automatically performing CIP functions is enclosed in a stainless steel cabinet. A pump, two solution tanks, automatic valves and steam-heating



Cabinet shown above contains a completely automatic CIP system

equipment are contained within the cabinet, and the usual indicating gages are located on the front of the panel.

All service connections, feed and return lines enter through the lower part of the cabinet and these connections may enter on either side. One solution tank is for concentrated detergent, and another is for concentrated sanitizer.

In operation the unit makes its own detergent and sanitation solutions by mixing fresh water and concentrate in proportion on a timed schedule.

Circulating water is heated by a steam injection heater located on the suction side of the pump. A motorized steam valve is automatically controlled by an adjustable thermostat so that solution temperatures can be properly regulated.

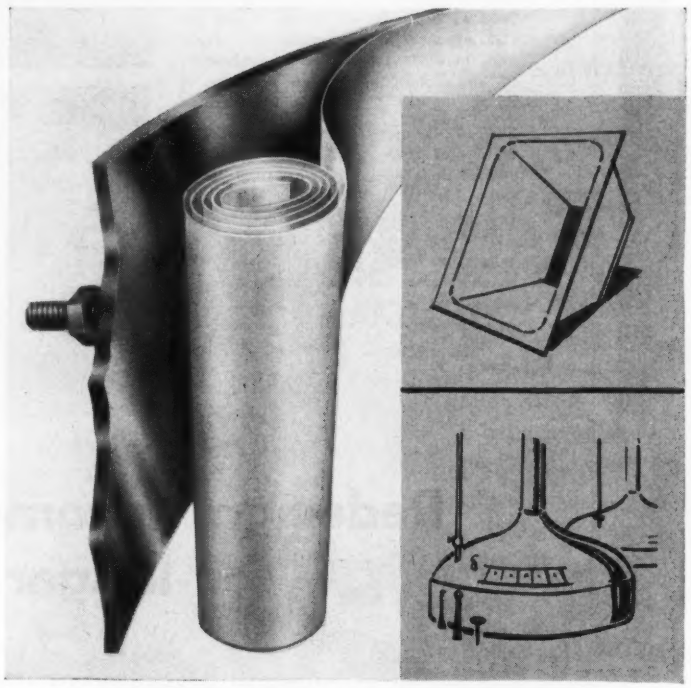
This same general pattern is followed for sanitation with chemical germicides. Hot water sterilization may be practiced with this equipment if desired.

Supplier: A. P. V. Company, Inc., 135 Arthur St., Buffalo 7, New York.

7619 on Reader Service Slip.

See this month's "FP Hall of Fame Cartoon" on page 122, and then vote for large reproduction of your favorite on the Reader Service Slip.

CEMENTABLE TEFLON LININGS for Anti-Stick Service



Garlock Cementable Teflon* Linings speed up processing on conveyor guide rails, hoppers, vats, other equipment.

Here's an idea! Apply Garlock Cementable Teflon Linings to your processing equipment. Your stickiest mixtures and batches will move faster...your cleaning time will be cut . . . your overall efficiency will improve.

Speeds up process cycle. Nothing sticks to Teflon. This unique lining material keeps most confections, concentrates, pastes and difficult powders flowing smoothly and quickly through hoppers, chutes, feeders, mixers, packaging machines. Cementable Teflon Linings prevent material build-up without the need for vibration equipment or manual attention.

Makes cleaning shorter, simpler. Just wipe off Teflon surfaces . . . no time wasted in scraping or soaking with special solutions. Sticky and gummy products "come clean" with minimum effort on candy bar frames, cookie flats, bakery rolls, proving pans, containers. And, your overall sanitation is greatly improved, too.

Completely sanitary. Teflon will not mix with or harm foodstuffs. It is completely odorless, colorless, nonabsorbent, noncontaminating.

Easy to apply. Garlock Cementable Teflon Linings can be securely bonded to common substrate materials such as metals, wood, glass, rubber, plastics and ceramics with a special Garlock adhesive. Cementable Teflon Linings are available in all sizes, too . . . in tape form, .005″ to .250″ thick through 24″ wide; in standard sheet sizes thru 24″ x 24″, $\frac{1}{2}$″ to 2″ thick; and in standard sheet sizes thru 48″ x 48″, $\frac{1}{16}$″ thru 1″ thick.

Find out how you can save time and money. Discuss the advantages of Cementable Teflon Linings with your local Garlock representative. He can be located at the nearest of the 26 Garlock sales offices and warehouses throughout the U.S. and Canada. Or, write for Catalog AD-177, Garlock Inc., Palmyra, N.Y.

GARLOCK

Canadian Div.: Garlock of Canada Ltd.

Plastics Div.: United States Gasket Company

Order from the Garlock 2,000 . . . two thousand different styles of Packings, Gaskets, Seals, Molded and Extruded Rubber, Plastic Products

*Du Pont Trademark

7620 on Reader Service Slip.

Belting insurance protects another food processor

Burrell belting insurance is becoming more important than ever to you, the food processor. Your protection is Burrell's 48 years of successfully engineering belts for all requirements.

Burrell Burtek Hy Gene Belt carrying hot, salted potato chips at Jays Foods, Inc. model Chicago plant.

Burrell Burtek Cleated Belt with solid Buna N cleats on Jays "Cheezelets" line.

Burrell belting insurance means:

- the right belt for each specific job
- prompt delivery and follow-up service

Burtek Hy Gene 3 (Buna N) belting provides:

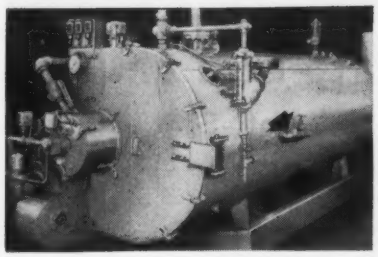
- resistance to heat, fats, oils, food acids, alkalis
- flexibility under wide range of process temperatures
- maximum operating life to minimize down-time and production costs
- easy to clean and keep clean
- will not hold or transmit objectionable odors and flavors
- may be vulcanized or laced endless

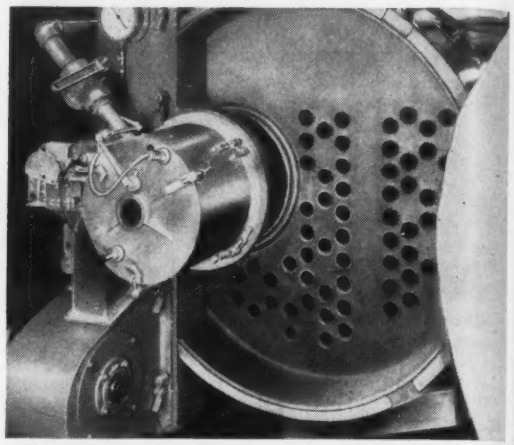
• Write for the new catalog describing the full Burrell belting line.

BURRELL BELTING COMPANY
7501 N. ST. LOUIS AVE., SKOKIE, ILLINOIS
Chicago Phone: AMbassador 2-8110

SALES OFFICES IN PRINCIPAL CITIES

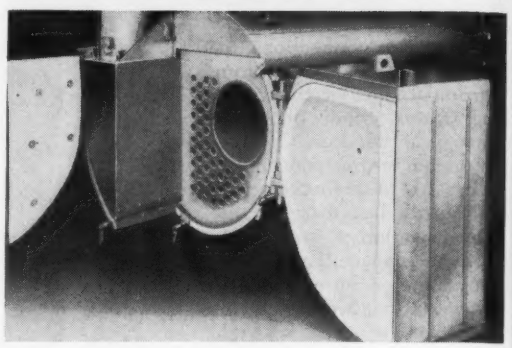
7621 on Reader Service Slip.





Over-all view of Positive-Flow® boiler above, and with front open at right. Duct at left is for air intake. It has one side exposed to hot water and steam and therefore achieves some preheating of air. Blower is mounted on base of boiler.

One of the design features is the elimination of interior refractory baffles at rear of boiler which separate turn-around space (1st to 2nd pass) from stack plenum chamber. Note how the two rear covers, as well as front cover, are arranged on hinges and are furnished with quick-opening fasteners to make access to interior a matter of minutes. Boiler can be opened without disturbing burner, wiring or piping



Redesign automatic boiler for longer life

NEW PACKAGED boiler has burner and fire tube located to left of vertical center line rather than in center like most conventionally designed boilers.

Outstanding feature of this boiler is its design for water circulation, see diagram right. Feedwater enters at right, arrow in photo above, in a manner that augments natural thermal circulation. This design provides maximum circulating rate and highly efficient heat transfer.

Feedwater distributes itself laterally toward both ends of boiler as it travels a circular, clockwise path. There is no "short circuit" between water inlet and steam space.

Because method of heat transfer approaches counterflow principle — coolest water in at coolest point and steam out at hottest point — internal thermal shock and thermal stresses are minimized. Thus boiler life is prolonged and maintenance is minimized.

Cover plates of the three-pass boiler makes gas-tight seals, yet provide easy access to boiler interior, see photos above. Standard dryback, which may be interchanged with optional wetback, has new type of pre-fired, high-temperature refractory liner.

Positive-Flow® Powermaster® boilers, developed by Orr & Sembower, Inc., Reading, Pa., are presently made in sizes ranging from 50 to 100 hp. Larger boilers are contemplated.

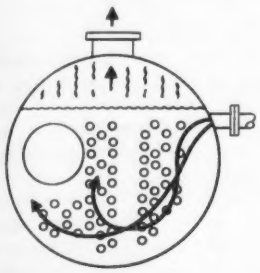
All boilers in line have 5 sq ft of heating surface per bhp and carry a guaranteed minimum efficiency of 80 per cent when firing oil and 75 per cent when firing gas. Steam quality is high; moisture is less than ½ of 1 per cent.

New burners are furnished with all Model PF® boilers. Burners have built-in dual fuel feature. They can be bought for one fuel, either oil or gas, and converted to the other with but minor adjustments.

Thus, need to purchase and install combination burner is eliminated in case a cheaper fuel becomes available any

time after boiler has been installed.

Burner can be switched from one fuel to another instantly. All that is required, assuming supply shutoff valves are open,



Inlet water enters at right, and being relatively cool, follows normal path of natural circulation. Water flows around tubes of third pass to bottom of boiler and then rises around second pass and fire tube.

Design shown, is for steam boiler. For hot water service, in which case there is no steam space at top, the feedwater is introduced at top through a distributor which directs the moving water down and around in the same clockwise fashion

is the flick of a toggle switch. Oil nozzle can be left in burner; will clean itself on switchover.

7622 on Reader Service Slip.

Pressure filters from 19 to 1080 sq ft

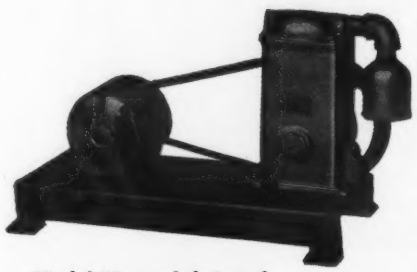
Eight-page brochure, Vertical Leaf Pressure Filters, covers two types of pressure filters: vertical-tank filters, which are primarily used for clarifying liquids with low percentage of solids, and horizontal-tank filters, which are used for slurries with high percentage of solids.

Filter areas of vertical units range from 19 to 510 sq ft and areas of horizontal units range from 60 to 1080 sq ft. Eight other specifications of each model in both lines are tabulated in Bulletin 150, available from T. Shriver & Co., Inc.

Brochure presents a general discussion of operating principles and describes with illustrations three types of filter leafs. It also points out uses and features of both types of filters.

7623 on Reader Service Slip.

is your compressed air problem an oily one?



Model N non-lubricated compressor available in ½, ¾ and 1 hp sizes.

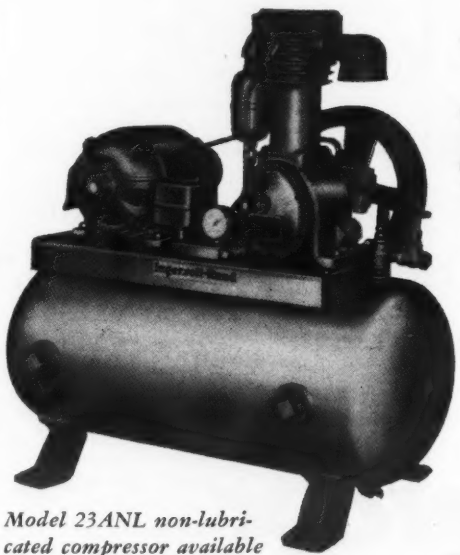
If so, see the leading air compressor manufacturer —Ingersoll-Rand. For *oil free compressed air* applications in food, chemical, combustion or process control, packaging, laboratory work, etc., small I-R non-lubricated compressors may be the answer.

Ingersoll-Rand non-lubricated units feature pistons fitted with patented graphitic-carbon rings that prevent contact of the piston and cylinder bore. These segmented rings with metal expanders have the correct bearing pressure against the cylinder wall. Metal to metal contact is eliminated and no lubricant is required in the compressor cylinder. The crank case is lubricated but oil cannot pass the crosshead portion that is equipped with seals and oil control or scraper rings.

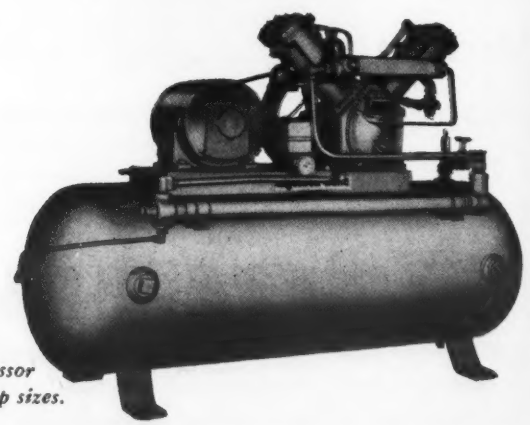
Why not have an experienced Ingersoll-Rand air engineer or distributor help you solve your problems.

Ingersoll-Rand

84A3 11 Broadway, New York 4, N. Y.



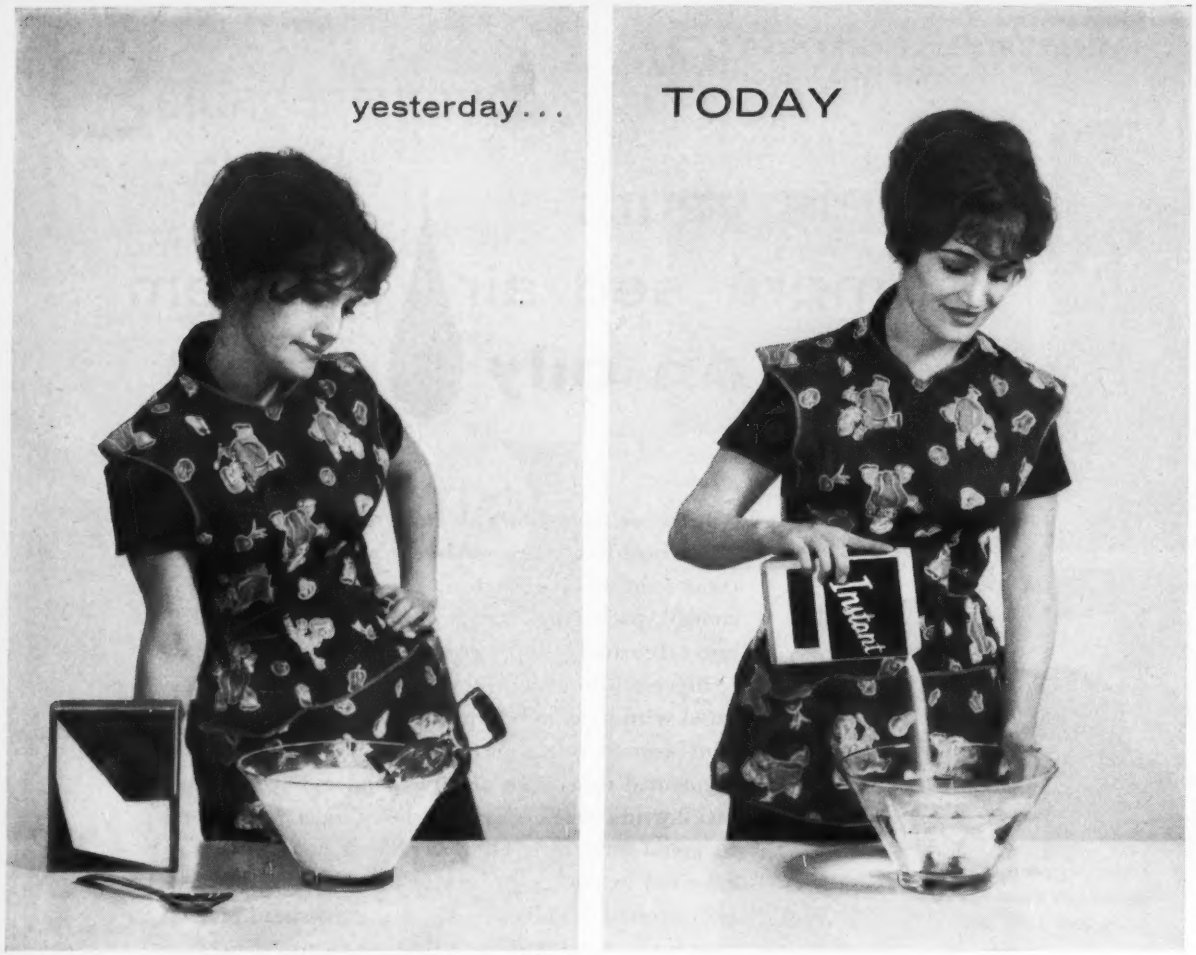
Model 23ANL non-lubricated compressor available in ¾, 1 and 1½ hp sizes.



Model 235HNL non-lubricated compressor available in 2 and 3 hp sizes.

Larger I-R Reciprocating Compressors are available in non-lubricated design.

7624 on Reader Service Slip.



TODAY she will buy the one that's instant.

Many products can be made instant by using the new Blaw-Knox Instantizer. Perhaps your product can! Write to Mr. Jack Thomas, Dairy Equipment Division, Mora, Minnesota for more information.

BLAW-KNOX
Dairy Equipment Division
MORA, MINNESOTA

7625 on Reader Service Slip.

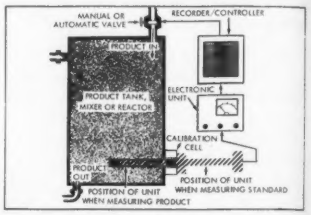
Routine measurement and control of moisture in fluids now possible with . . .

Nuclear moisture gage

Uses-Features: New instrument for use on processing lines as well as in tanks or mixers makes possible continuous measurement and control of moisture in liquids or slurries.

Using atomic-particle emission and reflection, gage measures moisture in range of 2 to 80 per cent, depending upon type of material.

Instrument, Qualicon Model 509 Fluid Moisture Gage, has



Probe-cell assembly may be used on existing tank or mixer by installing a fixed access tube and mounting a calibration cell on outside as a blister. Measurement probe is automatically driven into or out of tank on signal from transistorized instrument panel

response time of 10 seconds and span adjustment from 10 to 100 per cent. Instrument accuracy is ± 1 per cent and installed accuracy is generally better than ± 2 per cent of set point.

Description: System, made by Nuclear-Chicago Corporation, 359 E. Howard Ave., Des Plaines, Ill., consists of three basic components: measuring head, electronic read-out unit and recorder-controller.

Measuring head is designed as a cylindrical probe which, when used in tank or mixer, protrudes through a calibration cell, see diagram above. For installation in process line, cylindrical probe is integrated with special two-tank measurement cell, see photo.

Operation: Gage uses principle of neutron reflection to determine moisture content.

Signal from instrument's

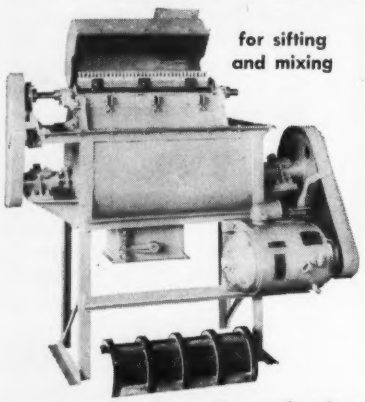
have a special **MIXING PROBLEM?**

SPROUT-WALDRON ADAPTIONEERED® MIXERS

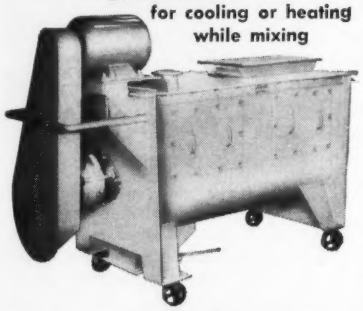
offer you

the right kind, the right size, the right style

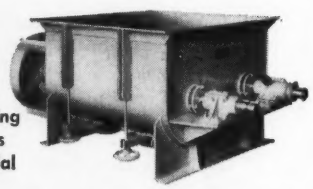
and your **SOLUTION!**



for sifting and mixing



for cooling or heating while mixing



for handling viscous material

These three units are typical of many special mixers built with Sprout-Waldron Adaptioneering. Whether your mixing needs are standard or special—*check with Sprout-Waldron for economy and efficiency.* Ask for Bulletin 148.

623

SW SINCE 1866 **SPROUT-WALDRON**

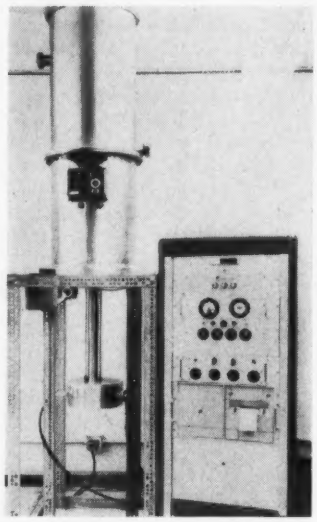
Muncy, Pennsylvania

Size Reduction • Size Classification • Mixing
Bulk Materials Handling • Pelleting

7626 on Reader Service Slip.

control

gage head is proportional to per cent moisture by volume, and electronic division is performed automatically to present per cent moisture per unit weight.



Cylindrical tank at top, through which liquids or slurries are piped, is measuring cell. Bottom tank is for standardization. Measurement probe, shown in calibration position here, is motor driven up into measuring cell for use; is retracted into lower tank for routine calibration or safe storage

For moisture measurement of liquids in which significant density changes occur, a two-channel measurement is necessary: one for measuring moisture and one for measuring density.

This is accomplished by using a measurement probe which contains a neutron source-detector assembly together with a gamma source-detector assembly.

Density variations are measured by the gamma unit. Corrections are computed electronically and percentage moisture is displayed on a wet- or dry-weight basis.

Principle of neutron reflection is also used by instrument which measures per cent moisture of solids. This instrument, as well as principle of neutron reflection, are described in an article starting on page 85 of the December issue.

7627 on Reader Service Slip.

Rietz

EQUIPMENT FOR THE FOOD PROCESS INDUSTRIES

the most important food companies in the world use Rietz equipment for

SIZE REDUCTION • MIXING • HEAT EXCHANGE

because they want the benefits of

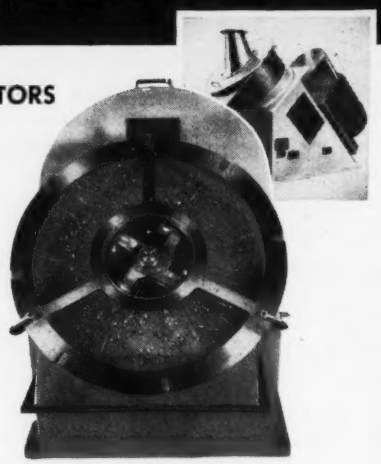
RIETZ DESIGN

RIETZ DEPENDABILITY

RIETZ SERVICE

Many of these companies are listed in Rietz Bulletin No. R-507 sent to you on request

ANGLE DISINTEGRATORS typify Rietz quality and performance



* Applications Include:
- Wet or dry grinding of difficult materials
- Fine pulping or pureeing
- Coarse crushing or shredding
- Fine dispersion
- Blending
- Homogenizing

* *Depending on screen size and RPM*

5600 RPM was stopped stroboscopically to illustrate three major Rietz Angle Disintegrator advantages

1. 360° effective screen surface
2. Rapid grinding action between rotors and screen
3. Complete accessibility for cleaning

Sales and Engineering Offices in
CHICAGO HOUSTON SEATTLE LOS ANGELES

Rietz MANUFACTURING CO.

Santa Rosa, Calif. • West Chester, Penna.

DISINTEGRATORS • PREBREAKERS • EXTRUCTORS • THERMASCREWS

7628 on Reader Service Slip.

How Neptune Syrup Meter

PAID OFF TWO-TO-ONE

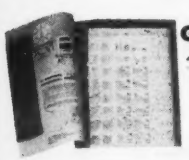
in first year at J. Hungerford Smith

By permitting purchases of caramel color at tank-car prices, a complete storage and metering system paid for itself twice over in materials costs alone during the first summer. And this is only part of the savings made by J. Hungerford Smith Company, manufacturer of fine root beer flavors.

Formerly, the caramel color was purchased in drums, requiring much man-handling and storage space. It took a man full time to measure the syrupy material with buckets. Now it takes only a few seconds for each batch. The operator simply sets up the Auto-Stop and opens the valve. The meter does the rest... shuts off automatically at the exact quantity required by the formula. The meter even turns the pump on and off.

Biggest advantage of all, according to Mr. W. Carvel Martin, plant manager: "It takes the guesswork out of the formula."

You can make savings like this in your plant.



GET THE FACTS
Ask for helpful Meter Data Bulletin 566 LFP See Neptune Data Pages in Chemical Engineering Catalog.

NEPTUNE METER COMPANY
LIQUID METER DIVISION
47-25 34th St., Long Island City 1, N.Y.

neptune

Branches in:
ATLANTA • BOSTON
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PHILADELPHIA (Bala Cynwyd)
SAN FRANCISCO (Millbrae)
Canada: Neptune Meters, Ltd.,
TORONTO 14, ONTARIO

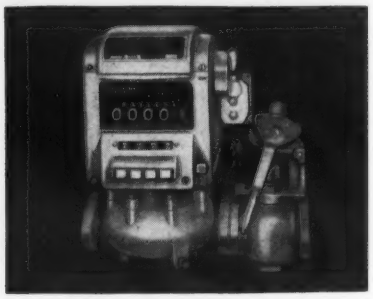
7629 on Reader Service Slip.

Auto-Switch Meter Controls Pumps, Valves, Relays

Neptune Auto-Switch register features an explosion-proof switch which is actuated automatically when any desired quantity of liquid has passed through the meter. The switch can be used to turn pumps on or off, actuate solenoid valves, start agitators, or control other cycling operations by use of suitable relays, etc. which can be devised.

The Auto-Switch feature is available either with or without the mechanically coupled Auto-Stop valve.

In a typical example using the Auto-Switch Register with Auto-Stop valve, the operator clears the



register back to zero, and sets the register for the required number of gallons or pounds of liquid ingredient to be delivered to a kettle or mixing tank. He then opens the coupled Auto-Stop valve to start the cycle. This also closes (or opens) the switch. When the desired quantity has been delivered, the meter automatically trips the valve shut, and at the same time actuates the electric switch.

Gauge-Stick Errors of ⅛ in. Can Cost Thousands of Dollars

Inaccurate liquid measurements can add up to thousands of dollars a year in wasted materials, time, effort, to say nothing of lowered quality.

For instance, it's a tough job to read a gauge stick down inside a 4-ft. tank, particularly when the tank is being filled with hot steamy liquids, or when the liquid is swirling around. Yet an error of just ⅛ in. means that *one gallon too much or too little* has gone into the tank. This *can* add up to thousands of dollars in wasted batches in the course of a year's production.

For formula-perfect batches time after time, get rid of the stick and put a Neptune Auto-Stop meter in every liquid line leading to the blending tank or kettle.

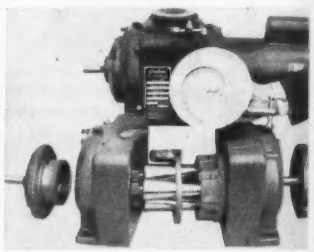
Accurate — Variable speed control

Provides equal changes in speed for equal increments of control

Uses-Features: Variable-speed transmission is regulated manually to control speed of individual process components such as pumps, feeders or conveyors.

It can also be remotely controlled through electric or pneumatic actuators to adjust ratio of one drive to another for automatic control of blending or processing systems.

Design of transmission produces linearity of control — equal changes in speed for equal increments of control adjustment. It also produces highly accurate speed control;



Exploded view of manual, micrometer-control speed transmission. Variable-speed reducer can be furnished for in-line or right-angle installation

a micrometer feed handle is used for manual operation.

Speed-control range is infinite. Settings can be made from any desired maximum to zero.

Since transmission is in form of a differential drive, overload protection is built in. Differential action will stall output shaft, preventing damage to rotating parts in event of jam up or overload.

Operation: Turning micrometer handle (in case of manual control) turns a control cam which engages a traction ring. In remote-controlled models, cam is turned through a rack-pinion arrangement, the rack being mounted on the piston of pneumatic actuator.

Turning movement of cam

causes axial movement of traction ring on three tapered rollers. Thus ring engages rollers at varying diameters to change speed.

Tractional pressure between ring and rollers is developed centrifugally.

Power from motor is transmitted through a roller carrier, coupled to motor shaft, to the three tapered rollers. At large end of rollers are pinion gears which engage a ring gear that is connected to the output shaft.

Supplier: Graham Transmission, Inc., Menomonee Falls, Wis.

7630 on Reader Service Slip.

Transistorized, thermistor temperature controls

Line of four temperature controllers and indicators, featuring transistor circuits and thermistor sensing elements, is described and illustrated in 8-page Bulletin MC-109.

Features of the instruments, such as various temperature ranges and scales (−50 F to 600 F), proportioning or on-off control action and remote or local control are discussed, and sketches of various application arrangements are provided.

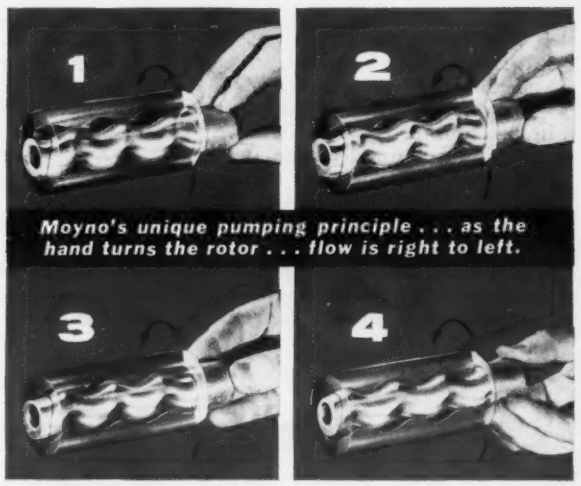
Released by Fenwal Incorporated, literature lists detailed specifications of the indicating and non-indicating temperature controllers.

7631 on Reader Service Slip.

"Play set or no play set — she's somehow come up with a marvelous new cake-mix!"

MOYNO® FOOD PUMPS *help the Green Giant keep the kernels whole!*

He's very fussy about the appearance of Niblets Brand corn, so Green Giant Co. uses Moynos to keep the tender kernels whole. Moyno's "progressing cavities" move all foods smoothly, without disintegration, pulsation, aeration or agitation! Variety ranges from thin soups to heavy peanut butter to chunky potato salad. Moynos keep foods pure, too! All wettable parts, except stator, are stainless steel. Stator can be stainless, synthetic rubber, odorless bakelite or other material. Smooth pumping elements can't lodge particles where bacteria might thrive. And Moynos can be dismantled, cleaned and be back on duty in minutes! Moyno food pumps are available in five sizes with capacities to 175 gpm and pressures to 75 psi. Write today for new Bulletin 100-FP.



Moyno's unique pumping principle . . . as the hand turns the rotor . . . flow is right to left.

ROBBINS & MYERS, INC., Springfield, Ohio

Fractional and Integral HP Electric Motors • Electric Hoists and Overhead Traveling Cranes • Moyno® Industrial Pumps
Propellair® Industrial Fans • R & M-Hunter Fans and Electric Heat • Trade-Wind Range Hoods and Ventilators
Subsidiary companies at: Memphis, Tenn., Pico Rivera, Calif., Brantford, Ontario.

7632 on Reader Service Slip.

Here's part of modern mixing room where LIGHTNIN Mixers blend Worcestershire Sauce.

How they insure uniformity of 130-year-old product

You don't gamble on equipment when you've been producing the famed Worcestershire Sauce since 1830.

That's why, for years, the makers of this product have blended it with LIGHTNIN Mixers. And that's why, when Lea & Perrins Company got ready to move into a new plant at Fair Lawn, N. J., they asked a LIGHTNIN Mixer representative for assistance.

He offered ideas on mixing that helped to improve the process. And he provided, on deadline, mixers that gently but efficiently blend the sauce in eight 6000-gallon aging tanks, two blending tanks, and a hold tank just ahead of the bottling line. Each mixer picks up and suspends solid ingredients in the liquid components, insuring uniformity at every step.

No downtime: "We would recommend LIGHTNIN Mixers to anyone," says W. Wallace Ryan, vice president and production manager for Lea & Perrins.

"Not one hour of our processing has been interrupted because of maintenance trouble or repairs to the mixers."

You, too, can take the gamble out of fluid mixing. Every LIGHTNIN Mixer you buy gives you *guaranteed* mixing results. LIGHTNIN Mixers are built to stand years of continuous heavy-duty service. Thousands are in use, many for 20 years and more.

Sizes from ⅛ to 500 hp, for every size and type of vessel. To get details, call in your LIGHTNIN Mixer representative now, or write us direct for illustrated catalog.

Lightnin® Mixers

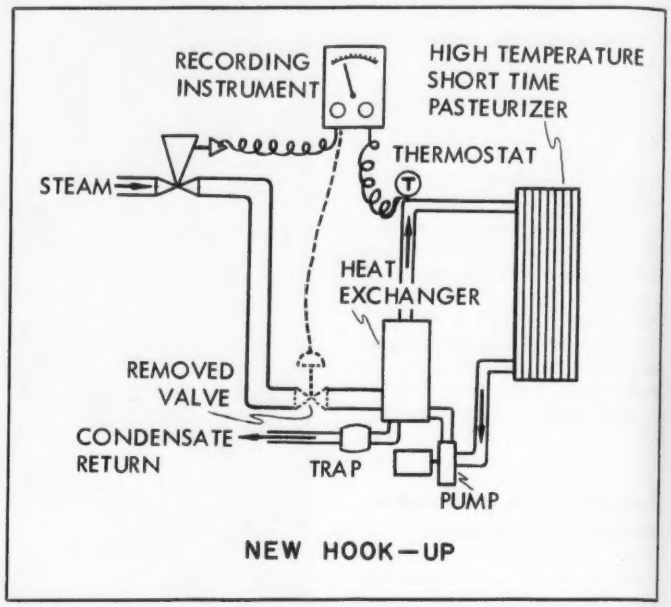
MIXCO fluid mixing specialists

MIXING EQUIPMENT Co., Inc., 132-b Mt. Read Blvd., Rochester 3, N.Y.

In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Avenue, Toronto 19, Ont.

In Europe: Lightnin Mixers, Ltd., Poynton, Cheshire, England

7633 on Reader Service Slip.



Changing method of controlling water temperature for HTST pasteurization was simple. On steam line, old pneumatic temperature regulating valve was competely removed and spring-loaded pilot valve on main pressure-reducing valve was replaced by pneumatic pilot. Air from old temperature recorder-controller was piped to new pilot

Improves temperature control on steam heat exchanger

Combines temperature with pressure regulation on heat exchanger for HTST milk for cheese pasteurization

Verified by
Technical Staff
of Spence Engineering Co., Inc.

PROBLEM: Temperature control of hot water, used as heating medium in HTST pasteurizer, was never completely satisfactory at Whiting Cheese Company, Gillet, Wis.

With a pneumatically operated temperature-regulating valve in steam line and a spring-loaded pilot valve on the main pressure reducing valve, temperature of the water frequently varied beyond the ±5 deg F limit required for milk pasteurization.

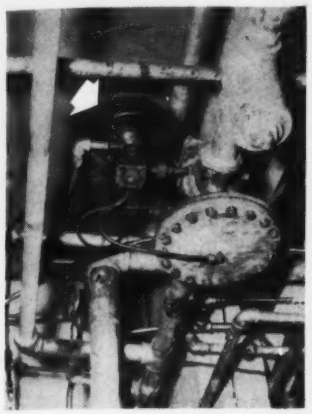
At Whiting, 25,000-lb HTST pasteurizer process about 125,000 lb of milk for cheese per day. Centrifugal, 1½-hp pump on return line of pasteurizer circulates 160 F water at 125 gpm to supply heat load of 1,350,000 Btu/hr.

Steam for heating water was reduced from 125 psi line pressure to 35 psi by a pressure reducing valve. Temperature of water was controlled by a pneumatically operated regulating valve in steam line, controlled through a temperature recorder-controller.

Worn out parts on temperature regulator eventually dictated either extensive parts

replacement or replacement of entire valve. Before proceeding with the job, Earl Whiting, owner of company consulted R. J. Engel & Associates, Appleton, Wis., supplier of the original regulator.

Solution: Engel suggested combining the functions of



New pneumatic pilot valve, arrow, mounted on main pressure reducing valve also acts as temperature controller. Pilot valve can operate in vacuum range, so that full modulation to heat exchanger is possible to take care of sudden load conditions

temperature and pressure regulation by removing the old temperature regulator and installing a recently developed pneumatic pilot valve on the steam-pressure reducing valve, see diagram and caption opposite page.

This pilot valve, Spence Model A-85, developed by Spence Engineering Co., Inc., Walden, N.Y., can be easily adapted to most instrument control systems. Any available source of air pressure can be used to adjust delivery pressure or temperature from a remote point.

Since pilot valve is mounted directly on main pressure reducing valve, greater stability of control is gained.

Also, distance from control station to pilot does not affect regulator's performance.

Remote control panel usually furnished with pilot valve was not required for this job. With operator adjusting the air loading pressure to maintain desired water temperature to pasteurizer, existing re-

New England Provision Co. uses Taylor Smokehouse Control Systems to minimize shrinkage, shorten smoking time and cut operating costs . . .

All the Julian smokehouses at the New England Provision Co. plant in Boston are under Taylor control. That's one reason the company continues to enhance the reputation of its NEPCO Brand Frankfurts, Bologna, Pastrami and Rolled Beef.

In the picture above Anthony Camelio, Supervisor, stands in front of four Taylor FULSCOPE® Recording Wet-and-Dry Bulb Controllers used to regulate process humidity and temperature. The dry bulb control adjusts the main steam valve to maintain a constant temperature in the smokehouse. The wet bulb control keeps humidity constant by throttling the spray water valve and positioning inlet and outlet dampers to control the amount of recirculation.

In your expansion or modernization programs, be sure to specify "Taylor-equipped as usual."

Call your Taylor Field Engineer or write for **Catalog 500MP.** Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario.

Taylor Instruments
MEAN ACCURACY FIRST

7634 on Reader Service Slip.

TRI-CLOVER

Products and Experience can help Automate your Processing Operations

Automation of food processing operations is becoming an increasingly important factor in determining over-all production capacity, and can be a contributing factor in the profit "picture" throughout the food industry.

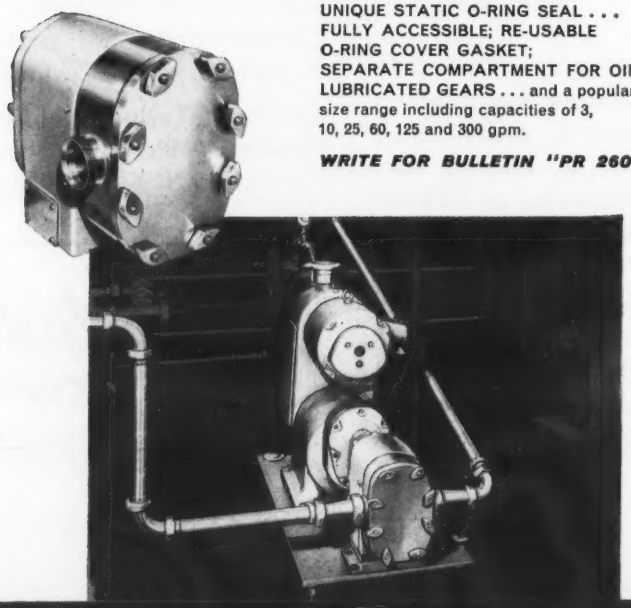
Tri-Clover Division has been actively engaged in the development and application of automated flow control systems. Established products have been improved and new products have been added to help bring production flow under positive control. And, complete facilities for the design, engineering and plant layout assistance needed to help you process the most product per man-hour expended are now available to you.

Write for further details.

NEW "PR" SERIES POSITIVE ROTARY PUMPS

This new high-efficiency series offers many exclusive features, including: FLOATING IMPELLER DESIGN; UNIQUE STATIC O-RING SEAL . . . FULLY ACCESSIBLE; RE-USABLE O-RING COVER GASKET; SEPARATE COMPARTMENT FOR OIL-LUBRICATED GEARS . . . and a popular size range including capacities of 3, 10, 25, 60, 125 and 300 gpm.

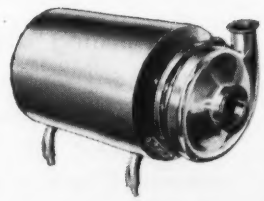
WRITE FOR BULLETIN "PR 260"

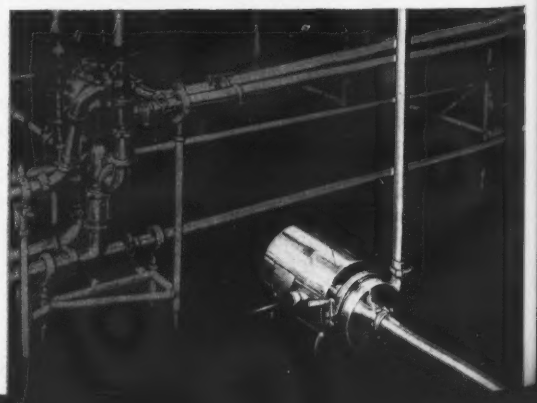


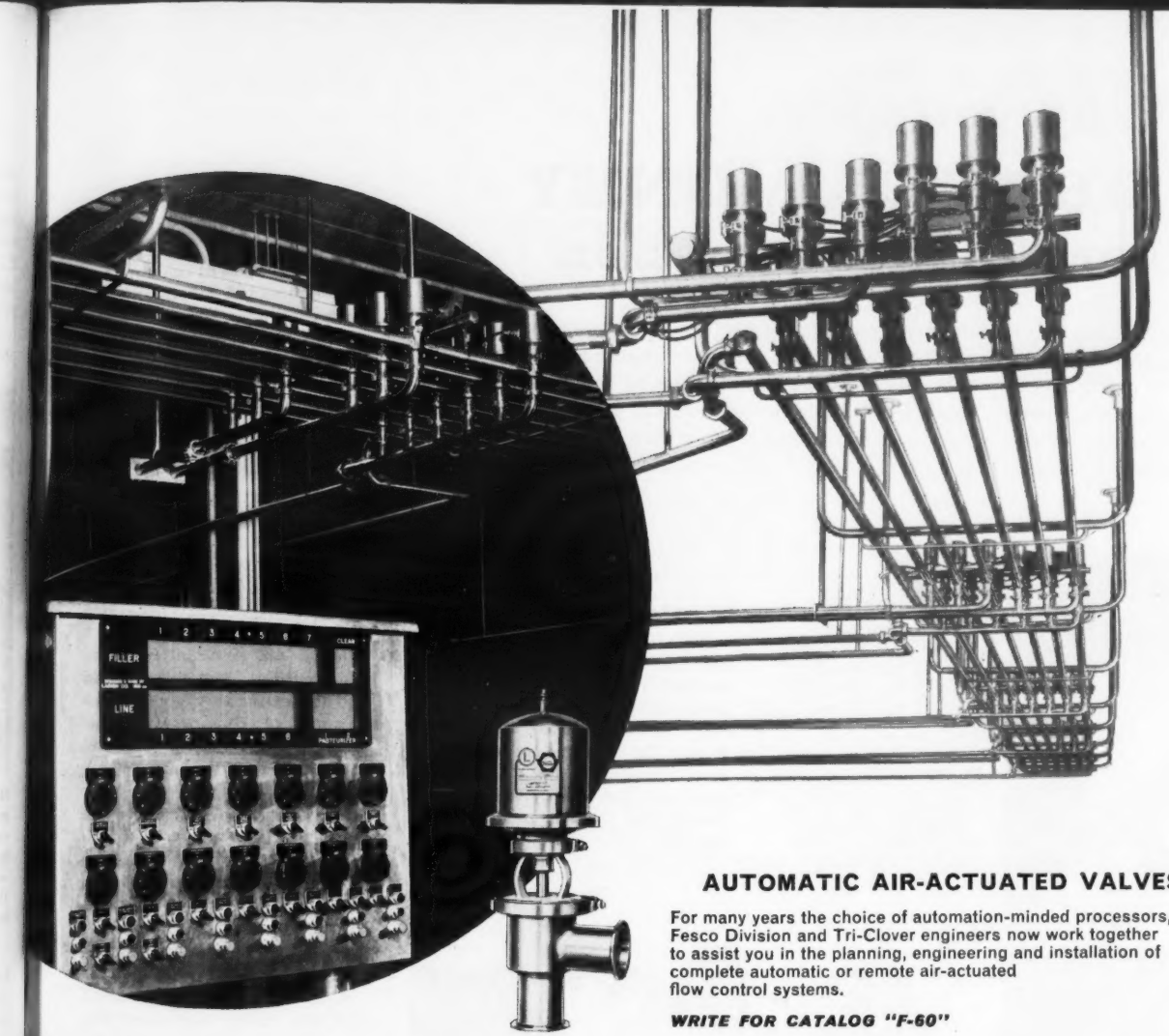
NEW "CIP" PUMP

This Tri-Clover Centrifugal Pump combines clean-in-place convenience with the efficiency of a fully developed volute-type head, one piece impeller and shaft, and one piece internal seal. It's a new concept in sanitary centrifugal pumps aimed at continuous "CIP" service.

WRITE FOR BULLETIN "CIP 260"



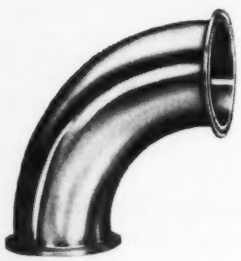




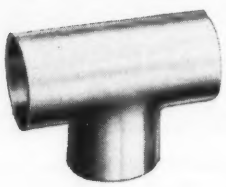
AUTOMATIC AIR-ACTUATED VALVES

For many years the choice of automation-minded processors, Fesco Division and Tri-Clover engineers now work together to assist you in the planning, engineering and installation of complete automatic or remote air-actuated flow control systems.

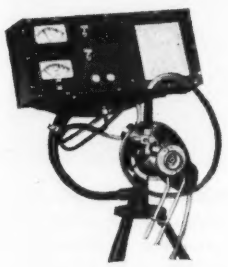
WRITE FOR CATALOG "F-60"



"TRI-CLAMP" Fittings



"TRI-WELD" Fittings



"TRI-WELDER" Portable Welding Unit

AUTOMATION-ENGINEERED FITTINGS

A continuing program of product development and improvement has resulted in expansion of the Tri-Clover line of plug valves, sanitary stainless steel tubing, fittings and centrifugal pumps. Snap action TRI-CLAMP® take-down fittings, TRI-WELD® welded fittings and the TRI-WELDER® are fast becoming major cost reduction factors throughout the food industry.

WRITE FOR LITERATURE

LADISH CO.
Tri-Clover Division
Kenosha Wisconsin

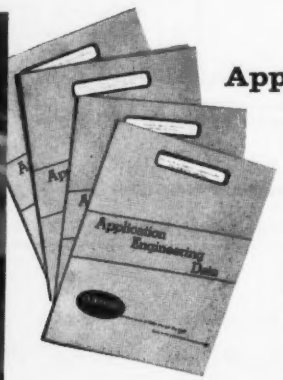
TRI-CLOVER

In CANADA: Brantford, Ontario
EXPORT DEPARTMENT: 8 South Michigan Ave, Chicago 3, Illinois.
Cable TRICLO, CHICAGO

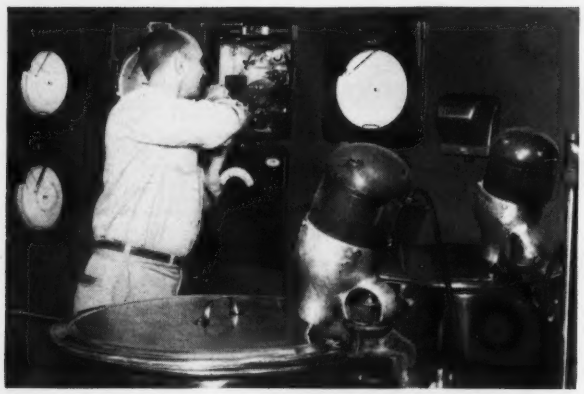
For more information on product at left, circle 7635 see information request blank opposite last page.

Why you get
MORE FOR YOUR MONEY
with Foxboro Instrumentation

The widespread preference of leading food processors for Foxboro Instruments is no accident. Behind all Foxboro products stand over 50 years of engineering integrity in creating instrumentation, not merely as mechanical devices, but primarily as the means *to make processes operate more efficiently*. You get the benefits of this experience in exclusive Foxboro Services that insure better *applications* of instruments, more dependable *performance* of your installation, and *upgrading* of your own process control men. Typical Foxboro extra-value Services:



Application Engineering — Before any application of a Foxboro Instrument or System is recommended, it has been exhaustively group-studied by Foxboro Engineers with specialized knowledge of specific industry requirements and characteristics of the process involved. Resulting Application Engineering Data is available on request.



Scheduled Maintenance Service — For your protection against variations in production quality and process down-time, Foxboro makes available a Scheduled Service Agreement. Under this plan, a factory-trained Foxboro Technician calls at scheduled intervals to maintain your Foxboro Instrumentation at continuous peak efficiency.

Training Classes — For instrument men and engineers of Foxboro Instrument users, the Company offers intensive 3-week training courses in the use, mechanics, application and maintenance of instruments. Conducted by full-time staff, with lectures by engineering and research department specialists, in Training Center at Foxboro, Mass.

The Foxboro Company, 922 Neponset Avenue, Foxboro, Mass., U.S.A.

FOXBORO
REG. U.S. PAT. OFF.

INSTRUMENTATION for the Food Industry

7636 on Reader Service Slip.

corder-controller could perform function of remote control.

Pneumatic pilot valve has two diaphragms which are mounted on top of one another and connected through two pressure plates. Upper or loading diaphragm is loaded from above by control air pressure from recorder-controller. This loading adjusts the set point of the pilot.

Under side of lower or control diaphragm is exposed to steam chamber which has three pipe taps: one for the upstream connection to open pilot when steam first comes on, and one for the conventional downstream connection for throttling the pilot.

Third tap serves two pipes. One of these leads to a bleeder and the other to the main diaphragm of the pressure reducing valve. Piping serves to open and throttle main steam valve and is arranged to produce stable performance of main valve.

Results: Combining pressure and temperature control into single regulating valve immediately resulted in greater accuracy and stability of control.

Cost of changeover, including pilot valve, was about $50. Mr. Whiting estimates that replacing old temperature control valve would have cost twice as much.

In addition, with only one regulating valve instead of two, operating and maintenance costs are similarly reduced.

7637 on Reader Service Slip.

Continuous machine cheddars cheese curd

A British research group has developed a machine for continuous cheddaring of cheese curd. A laboratory model of the machine has been made and successfully used.

The process is based on the principal that the weight of a column of curd will fulfill the requirements for cheddaring; curd matting, whey expression, and acid development.

The column of curd is contained in a tall cylinder which

tapers to a slightly reduced diameter at the top. The cylinder is provided with a mul-

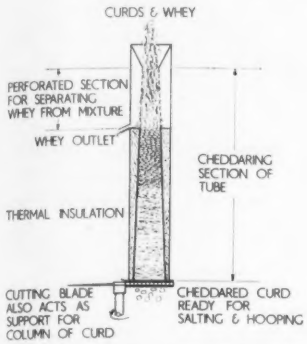

CURDS & WHEY
PERFORATED SECTION FOR SEPARATING WHEY FROM MIXTURE
WHEY OUTLET
CHEDDARING SECTION OF TUBE
THERMAL INSULATION
CUTTING BLADE ALSO ACTS AS SUPPORT FOR COLUMN OF CURD
CHEDDARED CURD READY FOR SALTING & HOOPING

Diagram shows cross sectional design of equipment

tiplicity of small perforations which allow whey to be expressed from the mass of curd.

A cutting device at the base of the cylinder retains the curd mass and removes finished curd as desired.

The process and equipment are patented. Inqueries for further information should be directed to the National Research Development Corporation, Suite 503, Mercury building, 1925 K Street N. W., Washington 6, D. C.

7638 on Reader Service Slip.

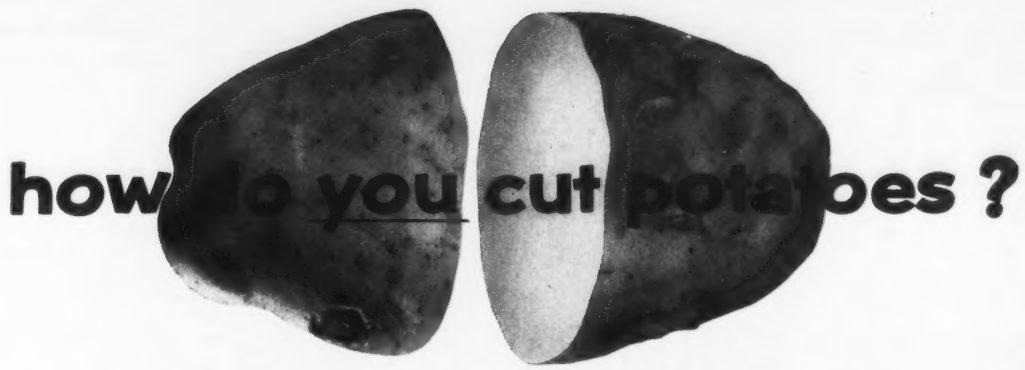
Measures low flow rates with ± ¼ % repeatability

Turbine flow meter which has repeatability of ± ¼ per cent of reading can measure flow from 0.004 to 0.6 gpm. It has a temperature range of −430 F to 1000 F and is useful in pilot plants, laboratories or in metering additives in minute quantities.

Potter Series 4000 Micro-Meter is illustrated and described in four-page Bulletin D-225, available from Potter Aeronautical Corporation.

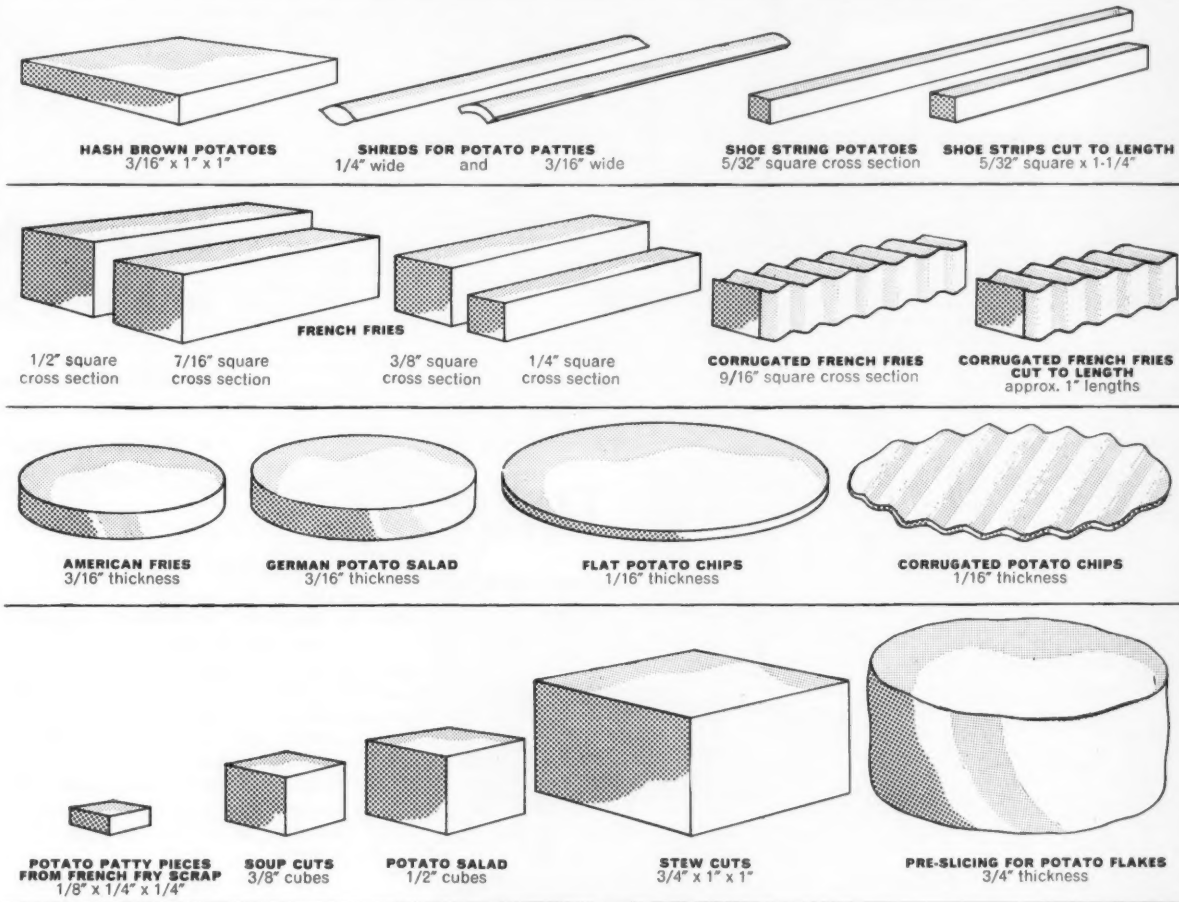
Literature contains a large sizing chart. It also graphically illustrates electronic equipment that is available for using meter's output signal for batch control, analog flow-rate indication or digital flow-rate indication.

7639 on Reader Service Slip.



how do you cut potatoes ?

New potato shapes, created to *revitalize* lagging appetites, are making important sales news all along the nation's shopping fronts. Urschel machines can cut practically any shape you want. They feature precision uniformity, highest yields, lowest product loss, unusually high capacities, low maintenance, and complete product protection (product contacts only stainless steel or special non-corroding metal surfaces).



Consult with our cutting specialists

URSCHEL LABORATORIES INC.
VALPARAISO, INDIANA

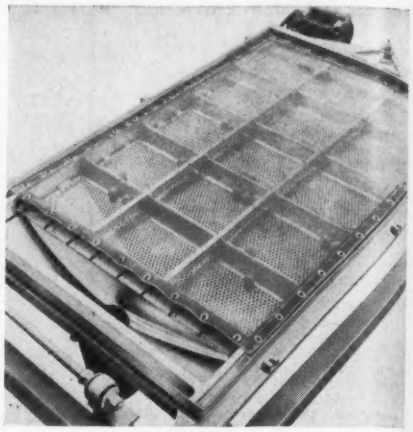
PRECISION HIGH-SPEED FOOD CUTTING EQUIPMENT

Designers and manufacturers of precision, high speed cutting equipment for food products.

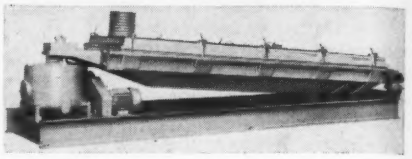
7640 on Reader Service Slip.

7641 on Reader Service Slip.

fp PROCESSING INSTRUMENTATION and CONTROL



Screens are attached to frames and kept taut by spring-tension clips which engage holes in screen edging. To remove screens, it is only necessary to pull up one corner and literally rip screen off. To replace screen, spring clips are lined up with holes and re-engaged either by hand or by use of small tool



Large, Sanitary Rotex Screener, Model 82-SAN has two screens for three separations. Other units presently made have one and three screens for two and four separations respectively. Screeners are made in wide range of sizes to meet various types of wet or dry screening requirements

Minimize down time with new sanitary sifter

- **'Rip-off' screens speed changes, continuously maintain even tension**
- **Reduce number of parts to minimum to simplify cleaning**

PRODUCTION screeners capable of handling large volumes for continuous separation are designed to conform to strict sanitary codes.

Featuring a new Rotex Screen Frame (patent pending) and simplified interior construction, units have already found acceptance in many applications where sanitation is of primary importance.

Frames are designed for fast changing of screens, see photo and caption above. Screen cloth can be applied in a matter of minutes without screws or clamps; can be removed in seconds, all without harm to screen material.

Screens are held to frames by metal spring clips which fit through holes in edging material that is molded right to wire screen. Clips maintain constant tension in two directions on screens regardless of length of run or type of screen material.

Frame and clip design considerably reduces down time when cleaning or changing screen meshes. It also reduces screen blinding and early screen failure.

Simplified sanitary construction is designed into multiple-surface screeners in two ways. Screen frames are combined with spacer frames into a single structure so that separate spacer frames are eliminated.

In addition, design is such that deep partitions or baffles required in end of convention-

al machines are not necessary.

Plug-in neoprene sealing strips are used for complete dust-tight protection around product-flow areas. Strips fit snugly into channels extruded into each side of frame at bottom.

Strips also form bottom-contact surface on top cover. Cover has an anti-splash guard that projects over lip of box frame.

Overall interior and exterior of Rotex Sanitary Screener, made by The Orville Simpson Company, 1250 Knowlton St., Cincinnati 23, Ohio, is designed for fast disassembly, cleaning and maintenance. Interior surfaces are smooth and all corners are rounded.

Rotex screener has low angle of slope and large circular motion in horizontal plane for efficient separation. Circular motion is largest at head where it is generated, and diminishes to an approximate straight line motion at discharge end.

When material is fed into machine, it is quickly spread across full width of screen by circular motion. Horizontal motion stratifies material, causing coarse particles to float to top of bed of material while fines sink down against mesh and pass through.

7642 on Reader Service Slip.

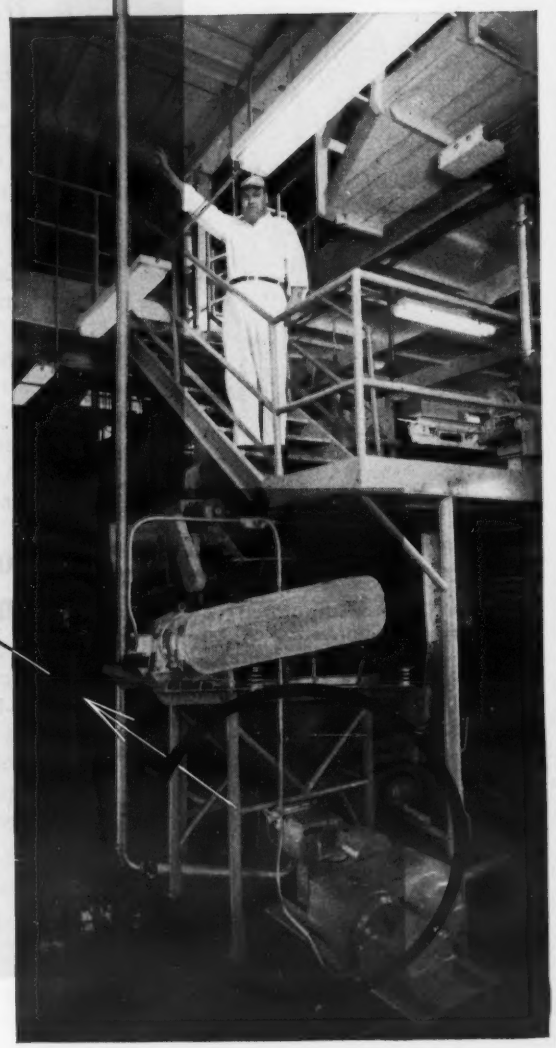
Many uses for carbon dioxide in meat industry

Carbon dioxide, either in liquid or dry-ice form, today finds many applications in various phases of meat processing. Discussion of these applications is presented with illustrations in 20-page brochure, CO_2 for the Meat Industry.

Released by Cardox Division of Chemetron Corporation, literature opens with a general discussion of why cooling with carbon dioxide is advantageous. Following introduction, specific advantages and methods of using CO_2 in making sausage, canned and prepared meats are pointed out.

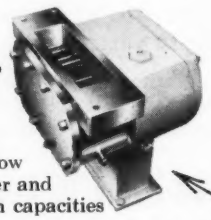
Other applications covered

lend an ear to this tall corn story



Our illustration shows Ray Anderson, Superintendent of the Rosendale, Wisconsin, plant of the Green Giant Company. He's pointing to some 30 feet of vertical pipe—connected to a maze of horizontal pipe—through which raw corn that has been cut from the cobs must be pumped on the way to the cookers. And we're pointing to this installation because it's a CP #6 Top Feed Rectangular Inlet Rotary Pump that's keeping the corn on its way.

That's quite a tall order. Not only does the pump have to overcome the resistance of all that pipe, but it must move the corn quickly and carefully. The corn must arrive at the cookers undamaged, with its "just picked" flavor intact.



THE CP RECTANGULAR INLET PUMP does all this easily, thanks to its big 27 sq. in. inlet which permits the unrestricted flow of corn into the pumping chamber and the pump's ability to move high capacities without cavitation.

Keep this story in mind if you have a viscous or hard to feed product handling problem. CP Rectangular Inlet Pumps are available with the standard five-lobe resilient rotors like the one at Green Giant, or with single-lobe rotors which will handle products containing particles up to ¾" cube size.

Write us for full details—ask for Bulletin A-1-525.

THE *Creamery Package*® MFG. COMPANY
General and Export Offices:
1243 W. Washington Blvd., Dept. FP-261, Chicago 7, Ill.
Branches in 23 Principal Cities
CREAMERY PACKAGE MFG. CO. OF CANADA, LTD.
267 King Street, West, Toronto 2B, Ontario

7643 on Reader Service Slip.

by brochure include cooling fresh-killed carcasses, freezing hamburger patties, cooling smoked products and cooling offal.

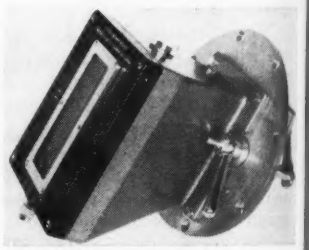
Final pages cover use of carbon dioxide in chilling edible cracklings, in immobilizing animals for humane slaughtering and in shipping.

7645 on Reader Service Slip.

Read % solids directly without use of eyepiece

Uses: For determining per cent soluble solids of materials in vacuum pan. Instrument has already found application in sugar refining, malt extraction, jam processing, concentrating fruit juices and condensing milk.

Features-Description: Readings are generally unaffected by color or optical density of liquid in pan since instrument uses back-illumination method. This method produces a



Refractometer has 10-in. diameter stainless steel or gun-metal flange

border line of total reflection which is projected onto a ground glass scale.

To keep prism face clean and to change layer of liquid next to prism, refractometer is equipped with wiper through which a stream of water can be applied. Automatic temperature correction is also incorporated into instrument.

Model R-23 B & S Pan Refractometer has scale length of 4¾ in. Scale is calibrated directly in percentage soluble solids by 1 per cent intervals, and range is 0-90 per cent or 10-95 per cent.

Supplier: Epic, Inc., 150 Nassau Street, New York 38, New York.

7646 on Reader Service Slip.

P-50A

DorrClone®

REMOVES SEEDS AND SPECKS FROM JUICES

...Automatically, without moving parts!

The DorrClone P-50A is a simple, cyclone-type separator that may be fitted to any transfer piping system handling several of the popular fruit juices. Installation is easier than putting in a valve. It operates on the centrifugal principle—feed entering the upper section is given a whirling motion that causes embryonic seeds, specks and other foreign matter to be thrown to the walls of a conical chamber and fall downwards to the discharge valve at the bottom while the pure juice flows continuously through the top outlet.

There are no moving parts—pump pressure in the transfer line does the work. Unit is sanitary one-piece porcelain construction — unaffected by fruit acids and cannot impart taste or odors. Capacity varies with pressure — from 7½ gallons per minute at 7.5 psi to 30 GPM at 80 psi. Multiple units can be used where higher capacities are required. Underflow consistency can be regulated by adjusting the discharge valve.

So simple and low in cost you'll want to order one for a trial installation!

Several well-known processors of citrus and other juices have been so impressed with the possibilities offered by the P-50A DorrClone that they have ordered and installed units on an experimental basis. Results have been so good that repeat orders have followed. Units are shipped complete with flanged metal collar for mounting purposes and Brewery Hose connections. Price is $160.00 f.o.b. your plant anywhere in the U. S. Use the coupon or send your regular purchase order.

Dorr-Oliver Incorporated
Stamford, Connecticut

Attn: D. C. Gillespie, Sales Manager
We're interested in trying a P-50A DorrClone on our juice transfer lines.

☐ Check for $160.00 enclosed
☐ Bill us and ship
☐ Send more details. We are processing____gpm of _____ juice.

Name_____

Company_____

Address_____

_____

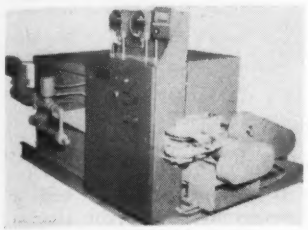
DORR-OLIVER
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

7644 on Reader Service Slip.

Air heaters from 150,000 to 3,000,000 Btu/hr

Line of air heaters, which can be used for drying, baking or general heating, are made as completely packaged systems or as single units for custom-engineered jobs.

Heaters are designed to use gas, oil or electricity. They are



Packaged gas heating system is equipped with indicating controller for automatic temperature control

rated from 150,000 to 3,000,000 Btu/hr for gas or oil and from 8 to 306 kw for electricity. Temperature of delivered air is 900 F for gas or oil fired units; 550 F for electrically heated units.

Two 2-page bulletins, available from Dispatch Oven Co., present complete descriptions and specifications of the heaters. Bulletin 210-4 covers the electric heaters; bulletin 210-3 covers the gas and oil fired heaters.

7647 on Reader Service Slip.

Counts up to 600 pieces per min

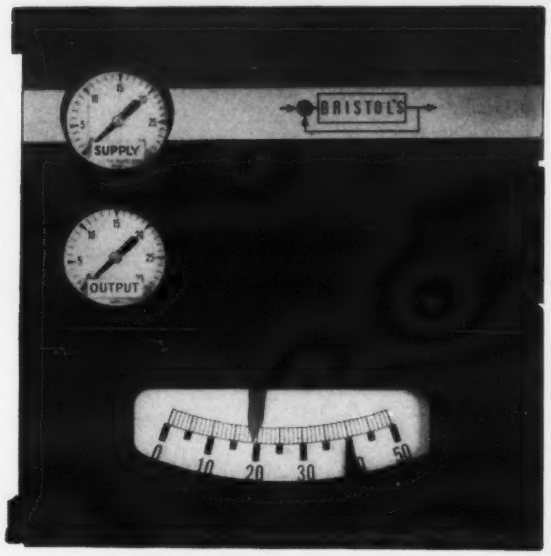
Photoelectric relay when used for counting is capable of operating at speeds up to 600 pieces per minute. Unit can also be used for other controlling or signaling functions.

Light projector and photoelectric receiver are waterproof, dustproof and vibration proof. Light projector is prefocused at 10 ft; can, however, be used at distances up to 25 ft. Receiver uses no vacuum tubes. Both units are described and illustrated in two-page data sheet, available from Electric Eye Enterprises.

7648 on Reader Service Slip.

NEW

BRISTOL'S



Series 624 A/D* pneumatic controller features simplicity and high control stability

- **Simple modular design for ease of servicing**
- **High control stability for closer process control**
- **Designed for batch-type and continuous processes**
- **Proportional and proportional-plus-reset control models available**

Top control performance with maximum simplicity plus standard Bristol precision measuring elements—those are the key features of the Bristol Series 624 Controller. The 624 uses the same renowned elements that have earned such a reputation for accuracy and dependability on other Bristol automatic controlling and recording instruments—perfected through wide experience and many years of development.

Self-contained modular design of the control unit speeds servicing. The whole modular unit, consisting of an aluminum casting with working parts made of stainless steel, Ni-Span C, and Neoprene diaphragms, can be removed by taking out only two screws and a link.

Outstandingly compact, the aluminum instrument case (only 8" x 8" x 5" overall) is completely weatherproof. It is designed for either flush, surface, panel, or valve mounting. Attachments for pipe mounting (2-inch pipe) are available. Write for complete data on the versatile and economical 624 A/D. The Bristol Company, 143 Bristol Road, Waterbury 20, Conn. 0.35

Advanced Design

CONTROLLERS OFFERED FOR:

PRESSURE AND VACUUM: Ranges from full vacuum to 10,000 psi.

TEMPERATURE: Ranges from —100°F to +1000°F.

FLOW AND DIFFERENTIAL PRESSURE: With mercury-type manometer and dry-type differential unit.

LIQUID LEVEL: With bulb unit and mercury manometer and dry-type differential unit.

HUMIDITY: Zero to 100% relative humidity.

CONTROL UNIT CHARACTERISTICS:

PROPORTIONAL BAND: 0-400% continuously adjustable, direct- or reverse-acting.

RESET: 0.1 to 50 repeats per minute.

AIR PILOT: Non-bleed type.

PILOT CAPACITY: 3.0 scfm.

FREQUENCY RESPONSE: Flat to 300 cycles per minute.

TEMPERATURE STABILITY: Less than 0.25% change in the output pressure for 90°F temperature change.

MATERIAL: Aluminum housing; 316 stainless steel internal parts; Ni-Span C feedback element.

BRISTOL... for improved production through measurement and control

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

7649 on Reader Service Slip.

Unitized shipping costs up to $4 per palletload . . . yet can provide dramatic savings by eliminating as many as six costly, damaging manual handlings.

Here's latest progress report . . . on how and why

Hunt Foods pioneers unitized shipping

First unitized-shipment experiments by Hunt Foods and Industries were begun at their big (40 canning lines) plant at Hayward in 1956, and later expanded to Fullerton and Oakdale plants. Hunt Foods has long been interested in improving shipping methods as a way to cut food costs. In the early part of 1952, they launched an exhaustive study of damage to canned goods in transit. Numerous changes in pattern loadings, cartons and containers were made, with a resultant 78 per cent reduction in damage by August 1953. This downward trend continued, and in 1957 Hunt Foods rail damage experience was approximately one-half that of the industry.

THE BIG SAVINGS potential offered by unitized shipping in eliminating damage and repetitive individual case handling continues to spur expansion at Hunt Foods and Industries, with headquarters at Fullerton, Calif.

Some time in the first quarter of 1960, unitized shipments passed the million-case mark, and may pass the two-million-case mark by the same time this year.

Shipments on one-way pallets, with cases secured by a breakaway glue, have been made direct to over 200 customers. Practically all the volume goes by water, where most progress in unitized shipping has been made to date.

Here, first in capsule form, then in more detail, are some of the conclusions based on Hunt Foods' experience with unitized shipments:

• Unit-Load shipping will continue to grow. A valuable stimulant has been the willingness of a few shipping companies to share the added costs of unitized shipping, which would otherwise be borne entirely by the manufacturer.

Supplier: Glue for unitizing cases by Adhesive Products, Inc., 520 East Shore Highway, Albany, Calif. 7650 on Reader Service Slip.

• It is no panacea, and a spectacular, overnight change cannot be expected in the next few years.

• Universal pallet size will continue to be a problem, but there is a growing acceptance of the 48 by 40 in. four-way pallet.

• Lack of fork trucks and dock boards, plus low-load warehouse floors at some receiving points, will hold back progress at these points for several years. As unitized shipping acceptance grows, these problems will gradually diminish. continued on page 106

1

2

ELVAN A. HANSELL,
Supervisor of Packaging
Hunt Foods and Industries, Inc.

KARL ROBE, Associate Editor

1 Cases receive stripes of glue on bottom

2 Motorized conveyor line applies breakaway glue for unit palletizing

3 Glued load is handled as unit at dockside. This one is bound for Mobile

4 The seventy-two cases on this pallet will not be handled individually until they reach break-down warehouse. Note hand-stacked cartons in hold

• Unitized shipments of cased goods *by truck and railroad car* is still largely confined to shipments between captive points or to a few special, large-volume customers.
• Freight rate reductions for unit loads by rail and truck companies would spurt growth of unitized shipping by these media.
• The only successful expendable pallet so far, in spite of added cost, has been a well-made, all-wood pallet with clear wood stringers, notched for four-way entry.

Let's look at some of these points in a little more detail. So far, water shipment — both intercoastal and overseas — has offered the best near-term opportunity to try out unitized shipping on a widespread commercial scale.

One reason is that fewer receiving points mean greater opportunity for standardization. A much greater stimulant was offered unit-load shipping in early 1958, when one steamship company offered to refund three dollars per ton when loads were unitized to their specifications on pallets and cases glued to each other.

How Hunt unitizes

At Hunt, this unitizing operation is performed manually by placing cases on a motorized roller conveyor equipped with a glue pot and roller applier. Cases pick up four narrow stripes of a special glue on bottom flaps as they pass over two glue rollers.

An additional man stacks cases on the 48 by 40 in. pallet, which has notched stringers for side-access by fork trucks.

Glue used has tremendous shear strength and resists the motions which occur during transportation. Tensile strength is low, so that cases may be lifted individually from pallet load with an upward tug, with little or no tearing of fiber.

The unitizing operation results in three additional expenses: labor, glue and pallet. These can amount to as much as three or four dollars per pallet load, including over two dollars for pallet and 10 to 15 cents per load for glue.

Since this extra expense

Save on city delivery and shuttle costs with '61 FORD TRUCKS

NEW POWER AND DURABILITY WITH PROVEN 332 HEAVY DUTY V-8

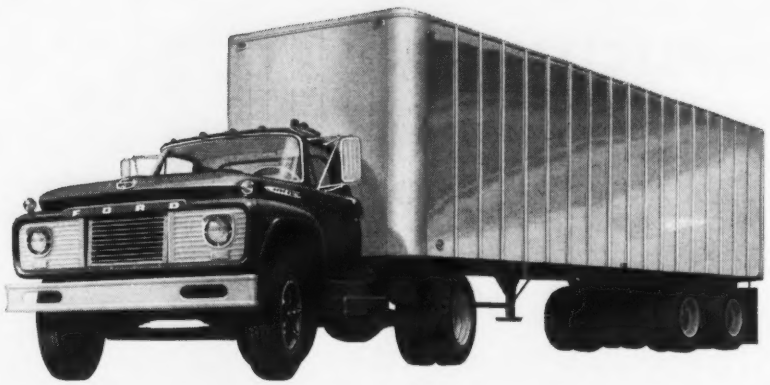
Ford's 750 Series tilt-cab and conventional models provide the versatility, payloads, hauling power and economy to make them exceptional city delivery and shuttle tractors. New power and chassis improvements make possible a big increase in maximum GCW . . . from 42,000 lb. to 50,000 lb.

The improved 200-hp 332 Heavy Duty V-8 is now standard for greater performance, proven durability and low operating costs. Stress-relieved cylinder heads, 4-ring aluminum alloy pistons, sodium-cooled exhaust valves and tungsten-cobalt alloy exhaust valve seat inserts are typical of the heavy-duty features to be found on this engine for greater durability.

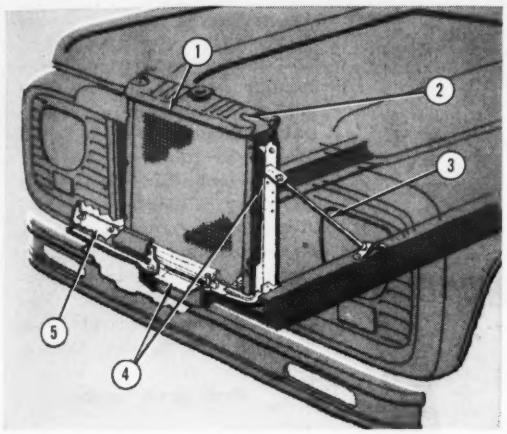
Ford F-Series models now have a 102-inch bumper-to-back-of-cab dimension, with front axle set only 28 inches from bumper. This permits longer trailers within given over-all length and bigger payloads—especially in "bridge formula" states. The new independent mounting system for cab and radiator separates both from adjacent sheet metal assemblies for greater durability. And radius rod-leaf type rear springs provide better axle alignment and longer spring life. The electrical wiring system has been improved for greater reliability. Chassis wiring is fastened within the frame web, away from mud, ice and snow.

Ford C-Series tilt-cab design distributes more weight to the set-back front axle to increase payloads as much as 1,000 pounds. And fine maneuverability makes these units popular for congested traffic city runs.

These units add greater flexibility to your operation because they can "pinch-hit" as line-haul tractors with their new maximum GCW of 50,000 lb.



SAVE WITH NEW HEAVY-DUTY CONSTRUCTION THAT DOUBLES CAB, SHEET METAL AND RADIATOR LIFE



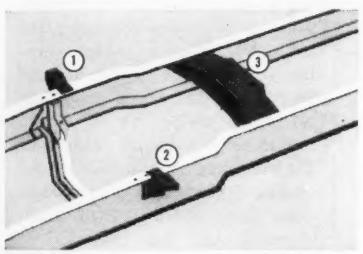
① **Ford's exclusive "lock-seam" radiator construction** doubles the solder area at key seams for greatly increased strength and longer radiator life.

② **42% heavier-gauge sheet metal** in fenders, hood, cab floor pan and toeboard gives greater strength and durability. Heavier-gauge metal on radiator tanks and header provides more strength, greater resistance to vibration, jolts and corrosion.

③ **Independent radiator mountings,** separate from front end sheet metal, mean that road shocks and shakes are not transmitted to the radiator through sheet metal. Tanks, tubes and connections last longer, require less maintenance.

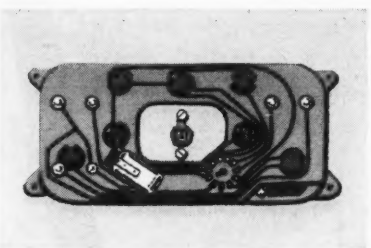
④ **"Horse collar" mounting,** seated on resilient rubber at the center of frame cross member, soaks up any frame flexing . . . cuts wear and tear on entire cooling system.

⑤ **Fender mountings,** independent of both cab and radiator, eliminate stress transfers for greatly increased fender life. And only 8 bolts per fender allow easy removal for rapid service accessibility to engine area.



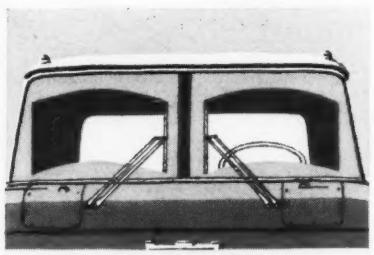
SAVE WITH NEW 3-POINT CAB MOUNTING

Two outboard front mounts plus a centered "twin" rear mount provide a triangular system that holds the cab stationary while allowing the frame to move independently. This reduces strains for greater cab durability.



SAVE WITH PRINTED ELECTRICAL CIRCUITS

Ford's printed wiring circuit is standard on all Tilt Cab models. This system, designed for long life, eliminates the "under dash" tangle of wires, minimizes shorts and is color-coded to provide for easier repairs.



SAVE WITH NEW ACCESSIBILITY

New Parallel Action wipers clear a bigger windshield area. And convenient access panels to the wiper motors cut service time and expense. These dependable wipers are available on all Tilt Cab models.

FORD TRUCKS COST LESS

YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" PROVES IT FOR SURE...

FORD DIVISION, *Ford Motor Company*

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cancels some of the bulk loading benefit promised by unit shipping, many companies were reluctant to incur this added expense.

Rate reduction stimulus

Shipping companies also benefit from handling unitloads rather than moving the equivalent 70 to 200 individual cases in and out of holds. Therefore, the three-dollar-per-ton reduction for shipping unitized loads was made.

This stimulated considerable interest, and Hunt Foods shipped over a third-million cases by this method in 1958.

Much of this volume was going to a destination where docks were not equipped to handle pallet loads efficiently, however, and shipping to this port dwindled.

This in turn caused a withdrawal of the three-dollar rate reduction, which resulted in a fall-off of unit-load shipments.

Luckenbach Steamship Company of San Francisco early in 1960 offered a $2.60 per ton reduction on unit shipments totaling over 10 tons. This again stimulated interest and added new ports.

Pope and Talbot Co. and States Marine Lines, both of San Francisco, followed with similar reductions. Further interest was stimulated, and Hunt Foods' total shipments for 1960 are well ahead of the peak 1958 pace.

Thus, unitized shipping has its foot in the door for water shipments. No big, dramatic breakthrough is in immediate sight for truck and RR shipping, however.

Truck, RR unitizing lags

Pallet-size standardization at West Coast shipping points allows two pallet loads to be carried side-by-side in standard 93-in. inside-dimension vans. However, many Eastern receivers still have trucks with smaller vans, and a changeover would be more costly to them than they figure they could save in unit-load operating costs.

Moreover, many unloading points do not have adequate fork lift trucks. This short-

coming is more easily overcome, since they can often be rented. For instance, Hunt Foods encountered considerable resistance to receipt of unit loads in Boston for several months. One reason was lack of fork trucks.

Now, in Boston, fork trucks can be rented for five dollars per the initial one-and-one-half hr — the minimum charge. This is adequate to unload an average shipment.

In other instances, warehouse floors will not withstand the 7000 to 9000 lb loading of a double-stacked seven-case-high pallet load.

In spite of such obstacles, Hunt Foods successfully ships unit-load consignments on a regular basis to these ports: Newark, Baltimore, Philadelphia, Brooklyn, Tampa and Mobile in the U.S.; Bremerhaven and Hamburg, West Germany; Antwerp, Belgium; Amsterdam and Rotterdam, Netherlands; Copenhagen, Denmark; Gothenberg, Sweden; Glasgow, Scotland; Dublin and Belfast; Montreal, Toronto and Halifax, Canada.

Hunt survey results

As can be expected, unit loads on only one-size pallet meet with mixed emotions. The majority of receiving warehouses approve of the attempt to reduce unloading costs, and willingly cooperate.

Almost without exception they comment that their cased goods arrive in better condition than before, with fewer damage and loss claims.

In fact, even some of those who cannot utilize the 48 by 40 in. pallet size still express enthusiasm for the project on basis of lowered shipping damage.

Remarks of this sort were uncovered through survey conducted by Hunt Foods during 1960 among those who had received unit-load shipments.

Over 30 replies were received. Of these, four com-

CONVEY YOUR APPLE OR POTATO SLICES WITH A SIMPLICITY CONVEYOR

CONVEYING EQUIPMENT FOR THE FOOD INDUSTRY

The Model 32-E Conveyor shown in the above photograph is conveying apple slices at the rate of nine tons per hour. Sliced apples are fed directly onto the top deck of the conveyor which is stainless steel screen cloth. All of the good slices feed over the cloth. The skins, seeds, broken slices and seed cells go through the cloth and onto the bottom deck which is a solid pan.

This unit can be used in the same manner for potato slices. The product which goes through the screen cloth can be used for potato patties or hash brown potatoes.

The three foot by six foot Model "C" screen shown at the left handles 600 pounds of apple slices per minute with 600 gallons per minute of brine. Efficiently removes seeds, chips, skins and broken slices. Brine is used for the recovery of seeds.

This unit is of stainless steel construction with a special deck. Openings vary from 5/16" to 3/8" slots.

Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND 6, MICHIGAN

SALES REPRESENTATIVES IN ALL PARTS OF THE U. S. A.
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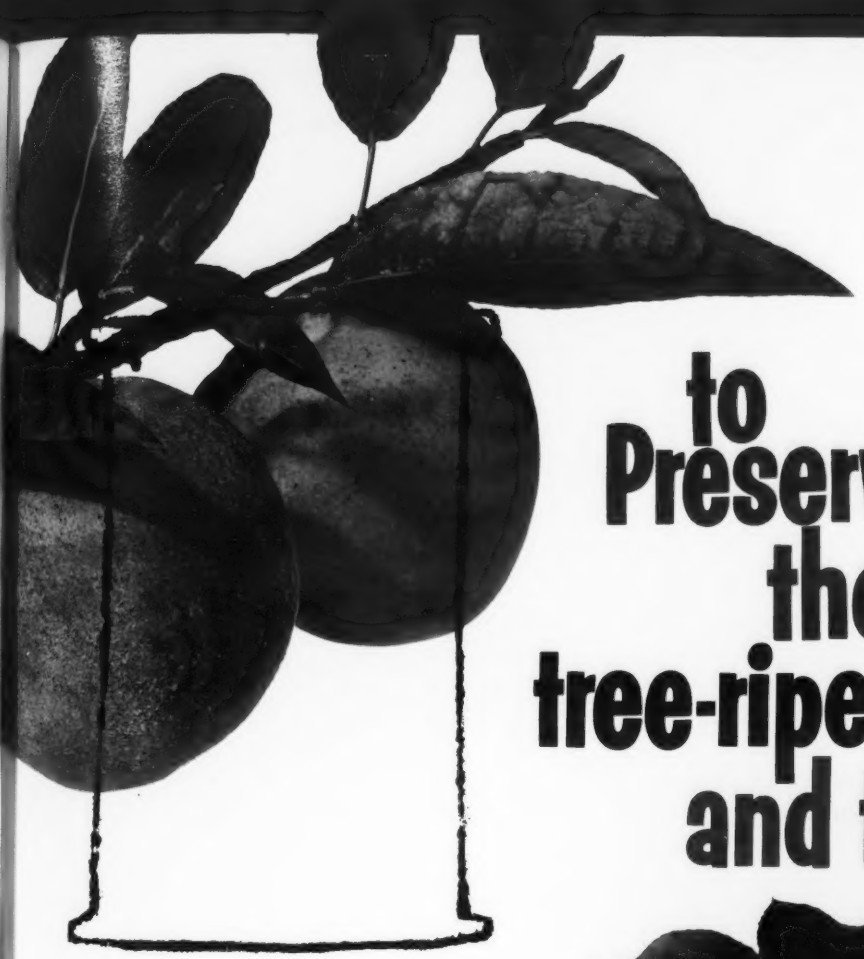
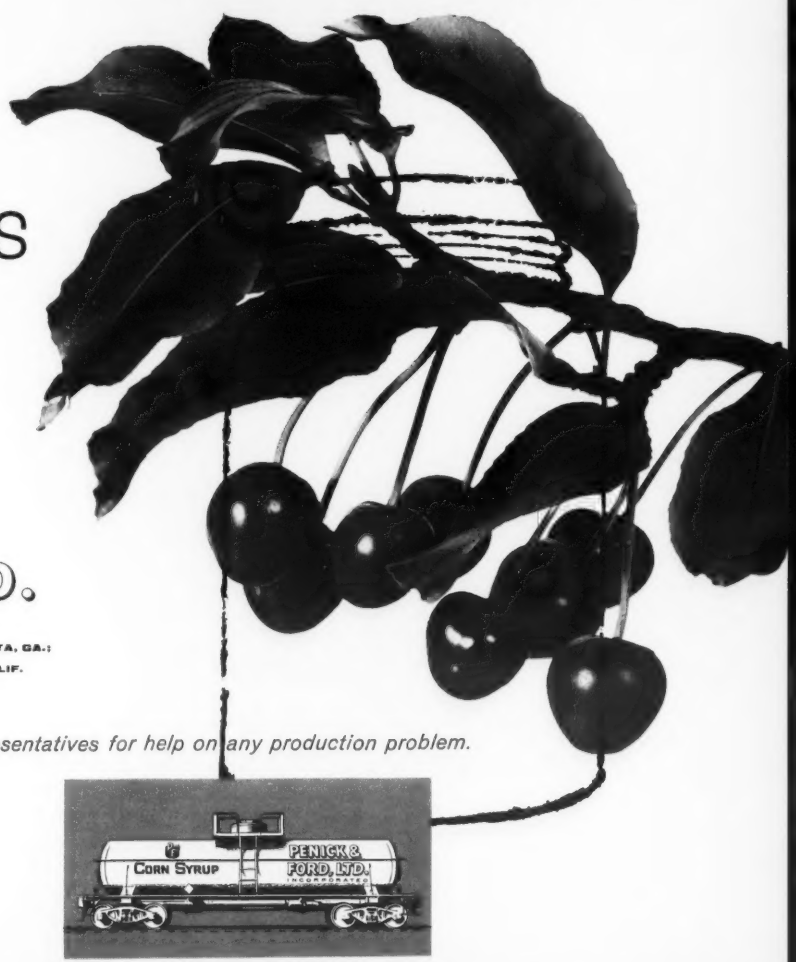
For more information on product at right, circle 7653 . . . see information request blank opposite last page.



to Preserve the tree-ripe flavor and texture...



Penford Canners Corn Syrup

Penick & Ford

PENICK & FORD, LTD.
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750 THIRD AVENUE, NEW YORK 17, N.Y.; 1531 MARIETTA BLVD., ATLANTA, GA.;
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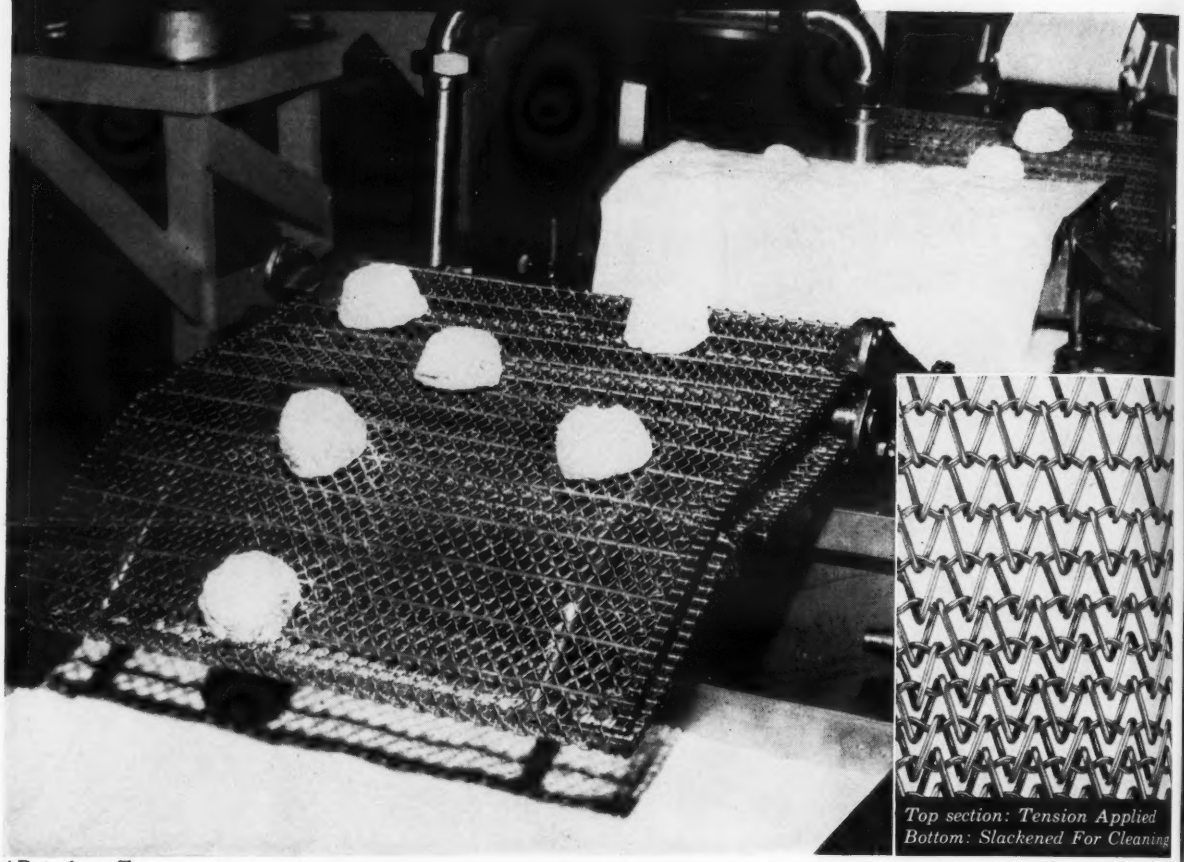
You can rely on our Technical Service Representatives for help on any production problem.

Cambridge Collapsible Metal-Mesh Belt*



Top section: Tension Applied
Bottom: Slackened For Cleaning

**Pat. App. For*

CLEANS ITSELF—INSTANTLY, THOROUGHLY

Just slacken tension on the Cambridge Collapsible Belt, run it through a cleaning tank, and watch it clean itself. Because each cross rod separates completely from the spirals, bacteria and odor-producing dirt, oils and greases flush away instantly and thoroughly. Yet, the Cambridge Collaspible Belt gives you all the metal-mesh belt advantages you need for fast, thorough processing.

There is a complete line of Cambridge Belts in special and standard metals and alloys to meet your specific requirements—custom built in any one of nine basic weaves to insure the most efficient processing.

Experienced Cambridge Field Engineers—experts in their field—are available to discuss your needs and help you select the belt best suited to your operations. Or, they can offer you sound advice on the installation, operation and maintenance of your Cambridge Belts. Talk to your Cambridge man soon. He's listed in the Yellow Pages under "Belting, Mechanical". Or, write for free 130-page reference manual.

The Cambridge Wire Cloth Co.

Department H • Cambridge 2, Maryland

Manufacturers of Metal-Mesh Conveyor Belts, Flat Wire Conveyor Belts, Wire Cloth, Wire Cloth Fabrications, Gripper ® Metal-Mesh Slings

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mented unfavorably on the choice of pallet size. One of these, however, indicated wholehearted support of Hunt's unitized shipping venture. The other 26 replies were highly favorable.

Some of the problems in gaining acceptance for unitized shipping have been technical; others are sales problems — convincing the customer that

Hunt uses this 48" x 40" four-way entry expendable wood pallet for unitized shipments

over-all gains will outweigh immediate shortcomings, and getting him to order in pallet-sized increments.

Hunt sales management has supported the unitized idea from the outset, and the entire sales force now has the proper information and training to speak knowledgeably to customers about pros and cons of unitized shipment.

Hunt Foods has prepared a commodity sheet showing number of cases of each item which constitute a pallet load. This is distributed to customers, and the sales force continues to work toward ordering in these increments.

Mixed pallet loads—costly

In order to broaden unit-load benefits in this, its early stage of development, Hunt Foods accepts orders to palletize mixed loads — more than one commodity per pallet.

This method is costly, but is considered a good educational expenditure. Wherever possible Hunt is asking customers

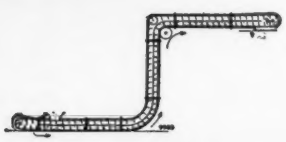
STEPHENS-ADAMSON

moves bulk material en masse vertically — horizontally — on inclines or around bends with **REDLER®** CONVEYOR-ELEVATOR SYSTEMS

S-A REDLER Conveyor-Elevators have a coveted 25 year reputation of successful operation. Well over 20,000 units handle a wide range of pulverized, granular, small lump and flaked materials in plants throughout the world. The REDLER Conveyor-Elevator moves material by EN MASSE action horizontally, vertically, on inclines or around bend corners. Material movement is continuous within totally enclosed, dust-tight compact casings, permitting large tonnage handling in small space. REDLER Conveyor-Elevators can be adapted to removing solids from a liquid bath in solvent extraction plants. The conveying elements, a series of U-type skeleton flights shown above in cut-away, move readily around sprockets and bend corners with relatively low power required at the drive. Skeleton flights may be easily unhooked and replaced without tools. S-A REDLER Conveyor-Elevator Systems speed efficiency reducing bulk materials handling to lowest cost per ton.

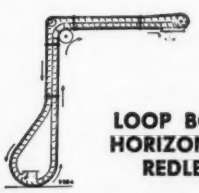
L-TYPE REDLER

Lower run can be horizontal or inclined. Elevating run can be operated at any required inclination. Special discharge openings can be spaced anywhere. Discharge to any one of three sides. Many variations of standard L-Type system available.



Z-TYPE REDLER

Combines two horizontal conveyors and one vertical elevator into one compact unit. One feedpoint, one discharge and one drive. Feed from choked feedpoints on horizontal run.



LOOP BOOT HORIZONTAL REDLER

Simplest form for elevating material up steep inclines. Column of material is supported on all four sides at inclines above the angle of slide for materials handled. Low headroom for feedpoints. Discharge gates placed wherever needed.

HORIZONTAL CLOSED CIRCUIT REDLER

"Run-around" type system employs side-pull conveying element. Permits conveying in several directions on horizontal plane. Available in two-way version featuring 180° bends and four-way version featuring 90° bends.

WRITE FOR BULLETIN 358

S-A
ENGINEERED BULK HANDLING SYSTEMS
MATERIAL HANDLING PRODUCTS
SPEEDWALK® PASSENGER CONVEYORS
SEALMASTER® BALL BEARING UNITS
SPHERCO® BEARINGS & ROD ENDS

ENGINEERING DIVISION

STEPHENS-ADAMSON MFG. CO.

GENERAL OFFICE & MAIN PLANT, 17 RIDGEWAY AVE., AURORA, ILL.

PLANTS LOCATED IN: LOS ANGELES, CALIF. • CLARKSDALE, MISS. BELLEVILLE, ONT. • MEXICO CITY, D. F.

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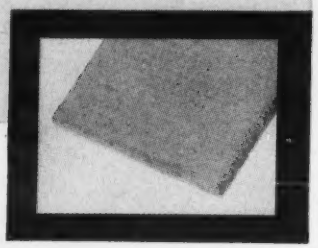

Why Victor 475 Conveyor Belting Is The Favorite Among Food Plants

For cleanliness that is a *must* in light food processing conveying operations — choose Victor 475 Conveyor Belting. Impregnated with Victor's own Neoprene compound, coated with Hycar, Victor 475 is a solid woven belt press-cured for a smooth surface that can't check or peel . . . resists food acids, oils and moisture . . . cleans easily with hot water.

You can choose Victor 475 Conveyor Belting, black or white, in a wide range of widths and thicknesses. Also available in Special Surface Application for specific operations.

You'll want to know more about longer-lasting, wear-resisting Victor 475 Conveyor Belting. For complete details, write today. 1667

A COMPLETE LINE, including: Neoprene Belting • Solid Woven Belting—untreated, impregnated, coated—many widths and plies • Canvas Stitched Belting • Hycar Belting • Belting Specialties.

Victor
Balata & Textile Belting Co.
53 Park Place, New York 7 • 300-306 W. Hubbard Street, Chicago 10
Factory: Easton, Pa.

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to order in layer multiples to increase efficiency.

A highly futuristic view of unit-load shipping would see cases coming directly off the production line, over automatic glue appliers and into mechanical palletizers. Seasonal volumes do not allow this degree of automation yet in most canning companies.

And yet, even under present conditions, unit load shipping can eliminate as many as six manual handlings. Only one package-unit is handled per transfer instead of 70 to 200 individual cases. Damage and pilferage are substantially decreased.

Time and patient mothering of the unitized shipping idea are likely to steadily resolve the restrictive factors, as long as there is a continuing impetus of some sort to keep interest alive.

The lowered freight rates by steamship companies have helped furnish this impetus. So have the collective aid of Hunt Foods' technical and sales staffs who have pushed the idea aggressively for four years.

Progress is a series of upward victories, and unitized shipping is steadily demonstrating this upward progress.

END

Describes equipment for bulk conveying

Conveying and propelling equipment for the chemical processing industries — that also has uses in many food processing applications — is described in 12-page bulletin offered by Fuller Co.

The bulletin, G-3D, discusses applications and performance characteristics of pumps, "Airveyor" pneumatic conveyors, "Airslide" fluidizing conveyors, rotary compressors and vacuum pumps, horizontal-grate coolers, suspension-type preheaters, positive-displacement blowers and gas pumps and induced draft fans.

Operating principles are explained and typical installations are shown. Supplementing the text are 13 photographs and 18 drawings.

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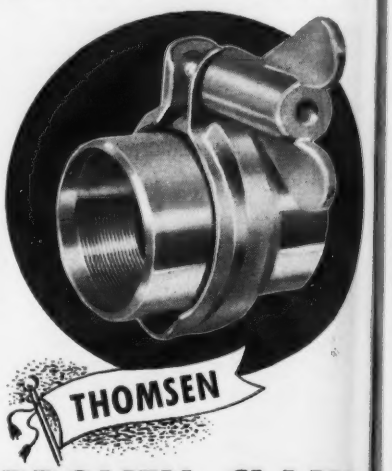
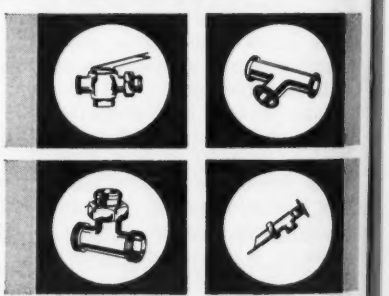
Take down and assemble in seconds with...

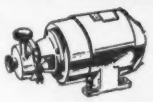


PROVEN CLAMP CONNECTIONS

Looking for a set-up on which to standardize? The answer is Thomsen stainless steel lines and fittings. Key to maximum efficiency for clamp-in-place or take-down lines is the new Thomsen vise action clamp which has more exclusive features than any clamp on the market. Go Thomsen all the way with pumps, tubing, fittings and valves. They will provide valuable engineering counsel on request.



THOMSEN MONO-MOUNT SANITARY PUMP



Here at last is the common sense sanitary pump design. The new Mono-Mount makes assembly and disassembly fast and easy. Stainless steel—no rust, no corrosion, easy cleaning.

FREE—New Thomsen clamp and fittings catalogs—write Department F

L. C. THOMSEN & SONS, INC.
KENOSHA, WIS.

7658 on Reader Service Slip.

Questions 'facts' on cleaning of bulk flour cars

In October, FP presented two solutions to the problem of moisture accumulation on interiors of metal bulk flour cars, in article entitled — "Control Condensation in Bulk Flour Loading."

In background to the problem, FP presented as fact certain statements, based on information from industry, which are challenged by John M. Gleason, assistant manager, Airslide & Dry-Flo Car Div., General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill. He writes:

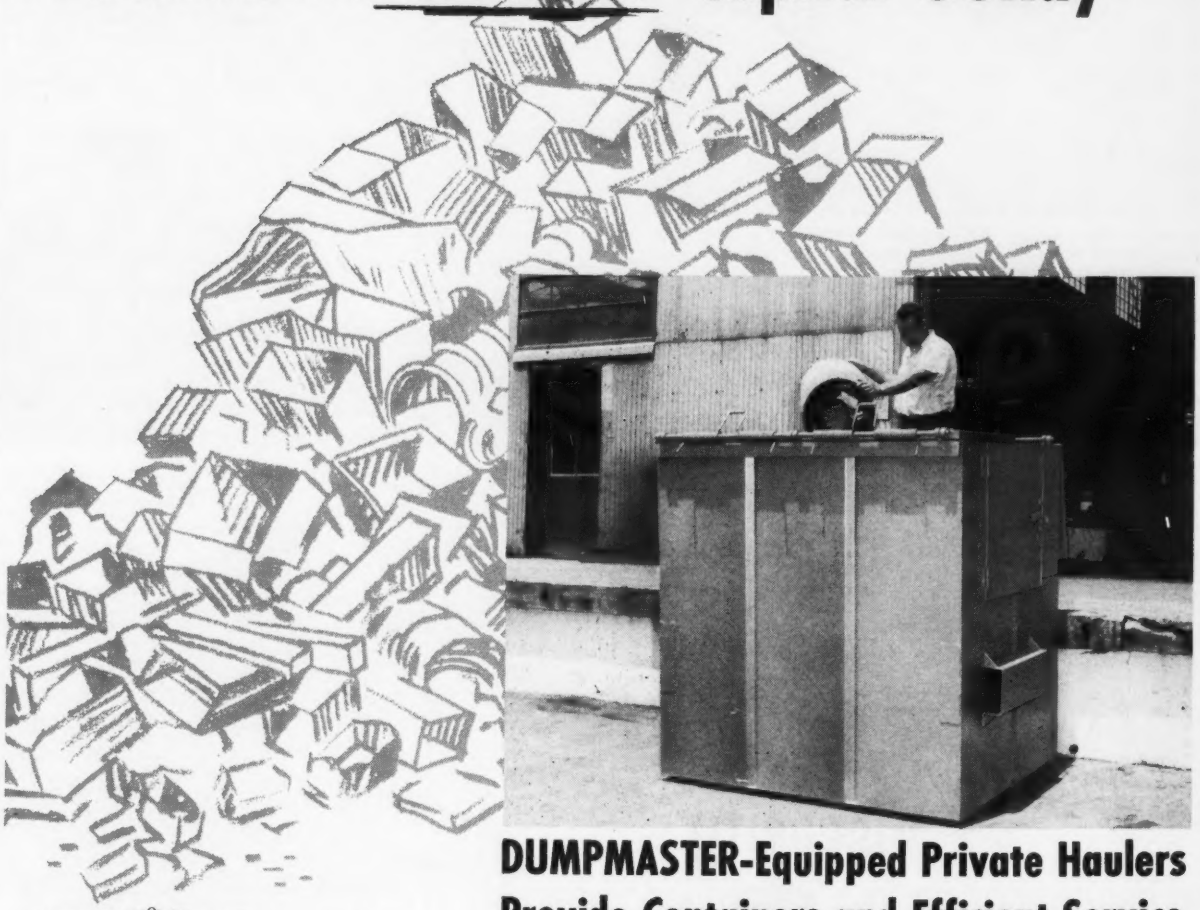
"The 15 to 25 man hours cited as required for cleaning cars is not representative of average time required by the Industry. Attached is copy of a paper presented by Mr. Alden Ackels, (now Vice President of Bay State Milling Company, Winona, Minn.) entitled "Dry Cleaning of Bulk Flour Cars." Average cleaning time cited is 4.25 hours per car. Further, in this connection, a number of millers are washing interiors of Airslide cars, and they state that this arrangement has greatly reduced their cleaning costs.

"The cost of completely relining a car is not $800, but instead will generally not exceed $600 per car, depending upon condition of the car as it is received at our plant.

"The statement is made that with constant cleaning the lining lasts only 18 months to two years. Recently we surveyed our records on the Airslide cars in service, and this study clearly showed that cars that are given proper cleaning and attention can expect to have a lining life of approximately five years in service before a complete relining is necessary.

"I also should point out that there have been instances where some cars were relined in much less time due to bad housekeeping and/or abuse of the interior lining by utilization of steel instruments, which is contrary to instructions stenciled on the car."

NOW! You Can End Refuse Storage Problems... WITHOUT Capital Outlay



IN ALL LEADING CITIES FROM COAST TO COAST

DEMPSTER DUMPMASTER® Equipped Private Haulers

DUMPMASTER-Equipped Private Haulers Provide Containers and Efficient Service

If you're plagued with trash piles, scattered refuse, fire hazards, and hit-or-miss collection, there's a good chance you can do something about it . . . WITHOUT CAPITAL OUTLAY!

In most major cities DEMPSTER-DUMPMASTER-equipped private haulers will put clean, big-capacity storage containers at convenient locations in your plant . . . empty them mechanically on schedule, or on a call-in basis . . . all for a reasonable monthly fee.

When you containerize your refuse, plant housekeeping becomes easy, employee morale goes up.

Write today for the name of your nearest private hauler. We'll also send literature describing his service.

Write Today for
Free Brochure and Name of Nearest Private Hauler
DEMPSTER BROTHERS
Inc.
Dept. FP-2 KNOXVILLE 17, TENNESSEE

7659 on Reader Service Slip.

EDMONT CASE No. 675: Handling 100 lb. paper feed bags, 10½ oz. cotton gloves wore out in 2 shifts. Edmont recommended a vinyl impregnated glove (No. 151 Werx), which wore 10 shifts, reducing glove costs 57½%.

Outwore cotton gloves 5 to 1

In the case above, the *job-fitted* Werx glove reduced glove costs from 11¢ per man-shift to 4.7¢. Its vinyl impregnated fabric gives non-slip grip even on slippery paper bags, is extremely flexible, keeps dirt out but lets air in and is 100% washable.

Free Test Offer to Listed Firms: Tell us your operation and materials handled. From more than 50 types of impregnated fabric and *Extra*coated gloves, we will recommend correct gloves and send samples for on-the-job comparison test.

Edmont Inc., 1212 Walnut Street, Coshocton, Ohio. In Canada, write Edmont Canada Ltd., Cowansville, Quebec.

Edmont
JOB-FITTED GLOVES

7660 on Reader Service Slip.

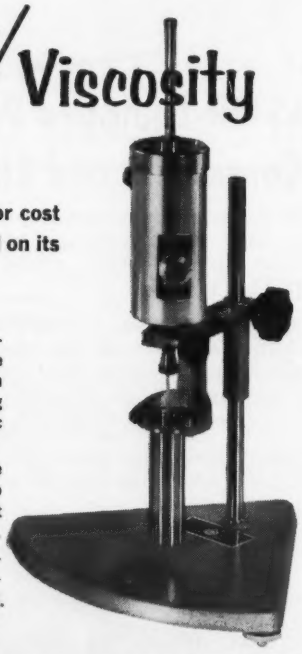
Rheology/Viscosity

Does the quality or cost of your product depend on its flow characteristics?

► A complete line of Epprecht Viscometers provide viscosity measurements in the laboratory or during processing with automatic control of viscosity.

► Measurements can be made at pressures up to 700 psi or in a vacuum at temperatures to 300° C.

For detailed technical information on Epprecht Viscometers write to Dept. DV-25.



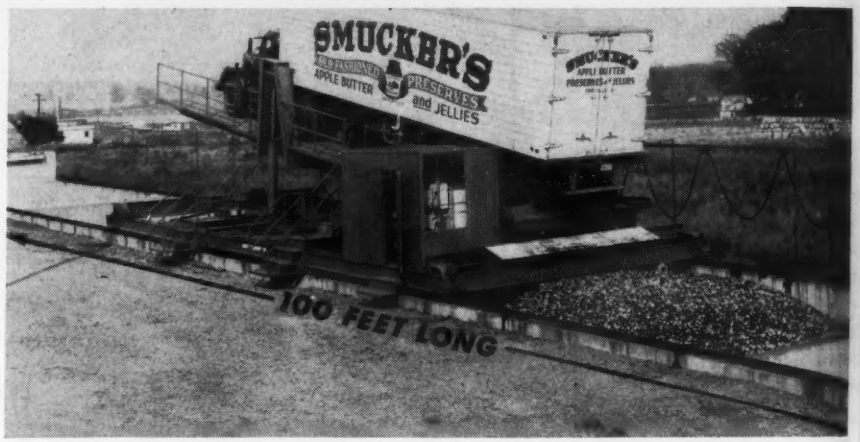
J. W. FECKER DIVISION
AMERICAN OPTICAL COMPANY

6592 HAMILTON AVENUE • PITTSBURGH 6, PENNSYLVANIA

7661 on Reader Service Slip.

Top photo shows tractor-trailer positioned on structural steel tilting platform, which in itself is mounted on a movable carriage. Entire assembly then is moved forward hydraulically on rails until truck is positioned over the proper receiving pit

In lower photo, tractor-trailer has dumped load of apples into one of five 20-by-20-by-20-ft concrete receiving pits located between rails. After being lowered to horizontal position, rail-mounted assembly will carry vehicle to ramp (arrow) at forward end of pit installation, enabling vehicle to drive off to road level. Small "building" mounted on carriage houses controls and hydraulic equipment



Tilt trailers • Spill apples • Speed processing

AT SMUCKER'S preserve manufacturing plant in Orrville, Ohio, apples are unloaded in a jiffy and with a minimum of labor from various-size trucks — including tractor-trailers — as they come in from nearby orchards.

Method used is a standard model "Kewanee" hydraulic truck dumper — which consists of a carriage-mounted, 50-ft-long by 10-ft-wide tilting platform — and is manufactured by Screw Conveyor Corporation, 700 Hoffman St., Hammond, Indiana.

The platform raises by means of two three-sleeve telescoping hydraulic cylinders to an angle of tilt of 20 degrees.

Platform tilt is accomplished by a 20-hp hydraulic power unit and a 165-gal hydraulic reservoir. Hydraulically operated wheel chocks hold rear end of truck on tilted platform when latter is tilted.

Entire hydraulically operated platform is mounted on a carriage which itself is driven by hydraulic fluid power. Once truck or tractor-trailer is positioned on the tilting platform, the carriage may be moved so that the load is dumped into any one of five 20-ft-sq by 20-ft-deep concrete pits.

To position a vehicle on the platform, it is necessary to run the carriage over to the first pit — whereupon the truck drives up a ramp and onto the dumper's structural steel tilting platform.

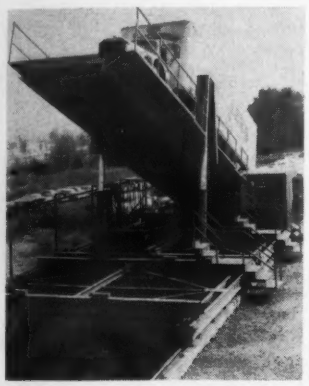
Truck or tractor-trailer then is placed against the wheel chocks, and the carriage is driven forward to the proper receiving pit. Truck's rear doors then are opened, the platform raised and the apples

dumped into one of the water-filled 20-by-20-ft concrete pits.

After dumping the load, truck is lowered to a horizontal position, and the carriage is moved forward over entire series of pits to a second ramp — to permit driving off to road level.

It also is possible to back the hydraulically operated carriage to the entrance end — over the first pit — so that truck or tractor-trailer may back off if more convenient.

The pits are fitted with an opening at the bottom, and, when opened, the apples flow out in a flume into the processing plant.



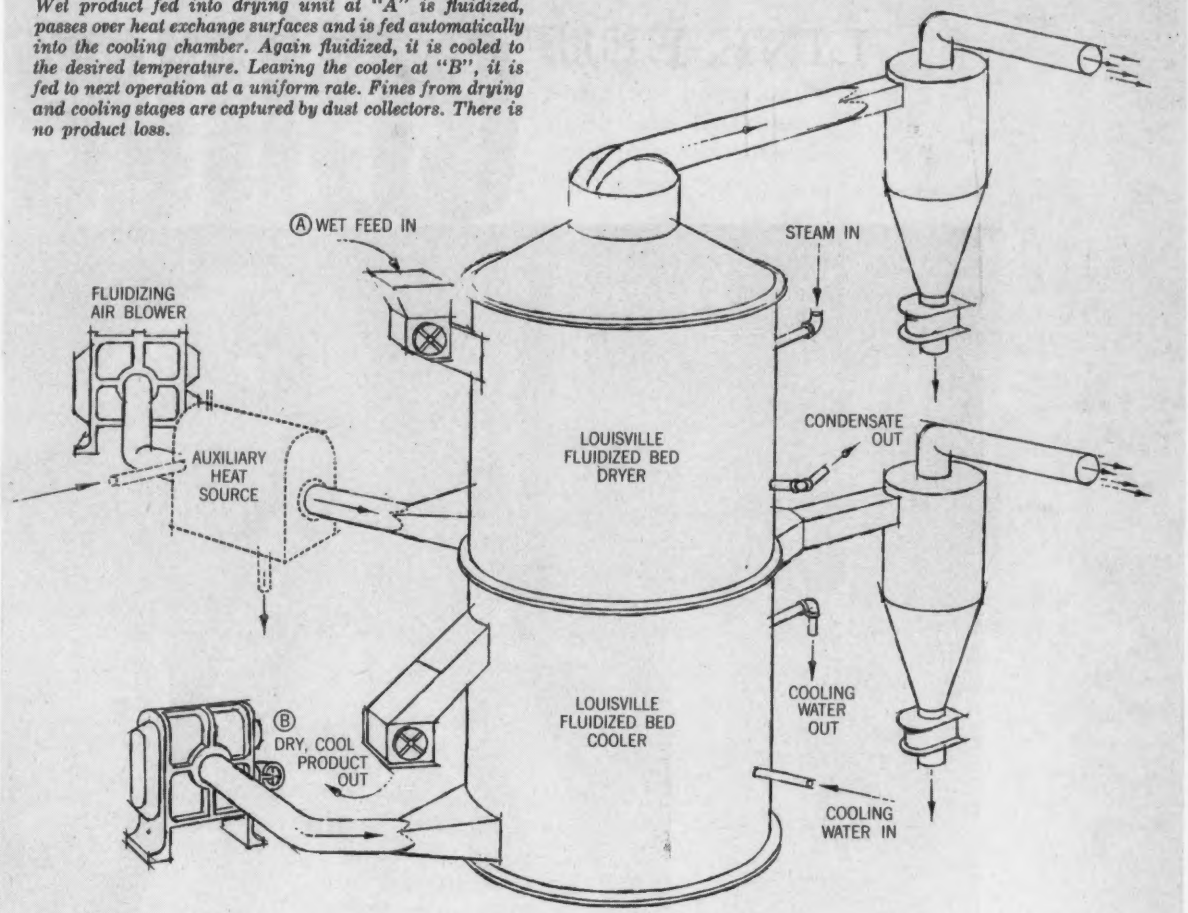
Dumper's platform is raised by means of two three-sleeve telescoping hydraulic cylinders, actuated by means of a 20-hp hydraulic power unit and a 165-gal hydraulic reservoir. Hydraulic power also propels the entire rail-mounted assembly

Other dumping applications for the hydraulic truck dumper are easily engineered by varying platform length (28-, 34-, 50-, 60-, and 70-ft lengths are available) and by providing angles of tilt (up to 50 degrees) to suit the material being dumped.

Already successfully handled by this type of equipment at other installations have been citrus fruits, cabbage, sugar beets, sugar cane, walnuts, peanuts, cottonseed and grain.

7662 on Reader Service Slip.

Wet product fed into drying unit at "A" is fluidized, passes over heat exchange surfaces and is fed automatically into the cooling chamber. Again fluidized, it is cooled to the desired temperature. Leaving the cooler at "B", it is fed to next operation at a uniform rate. Fines from drying and cooling stages are captured by dust collectors. There is no product loss.



Major break-through in drying and cooling techniques announced by

GENERAL AMERICAN

A new system for drying and cooling has been perfected by General American Transportation Corporation through their development of Louisville Fluidized Bed* equipment. Two Louisville units, one functioning as a dryer and one as a cooler are coupled vertically to provide a continuous automatic operation.

The system is particularly useful for crystalline chemicals, resins, polyvinyl acetate beads, polyethylene pellets, sugar and similar products having the proper particle size distribution.

Louisville Fluidized Bed equipment offers these advantages:

1. Accurate, instantaneous temperature control
2. High heat transfer that permits compact design
3. Low maintenance costs (no moving parts)
4. Less cleaning time and labor
5. Less floor space (equipment is vertical)
6. No hot spots (product is fully protected)

Because of their simplicity, Louisville Fluidized Bed dryers and coolers adapt readily to complete automation.

For full details about this revolutionary development in drying techniques, write Dept. **B.**

Process Equipment Division

GENERAL AMERICAN TRANSPORTATION CORPORATION

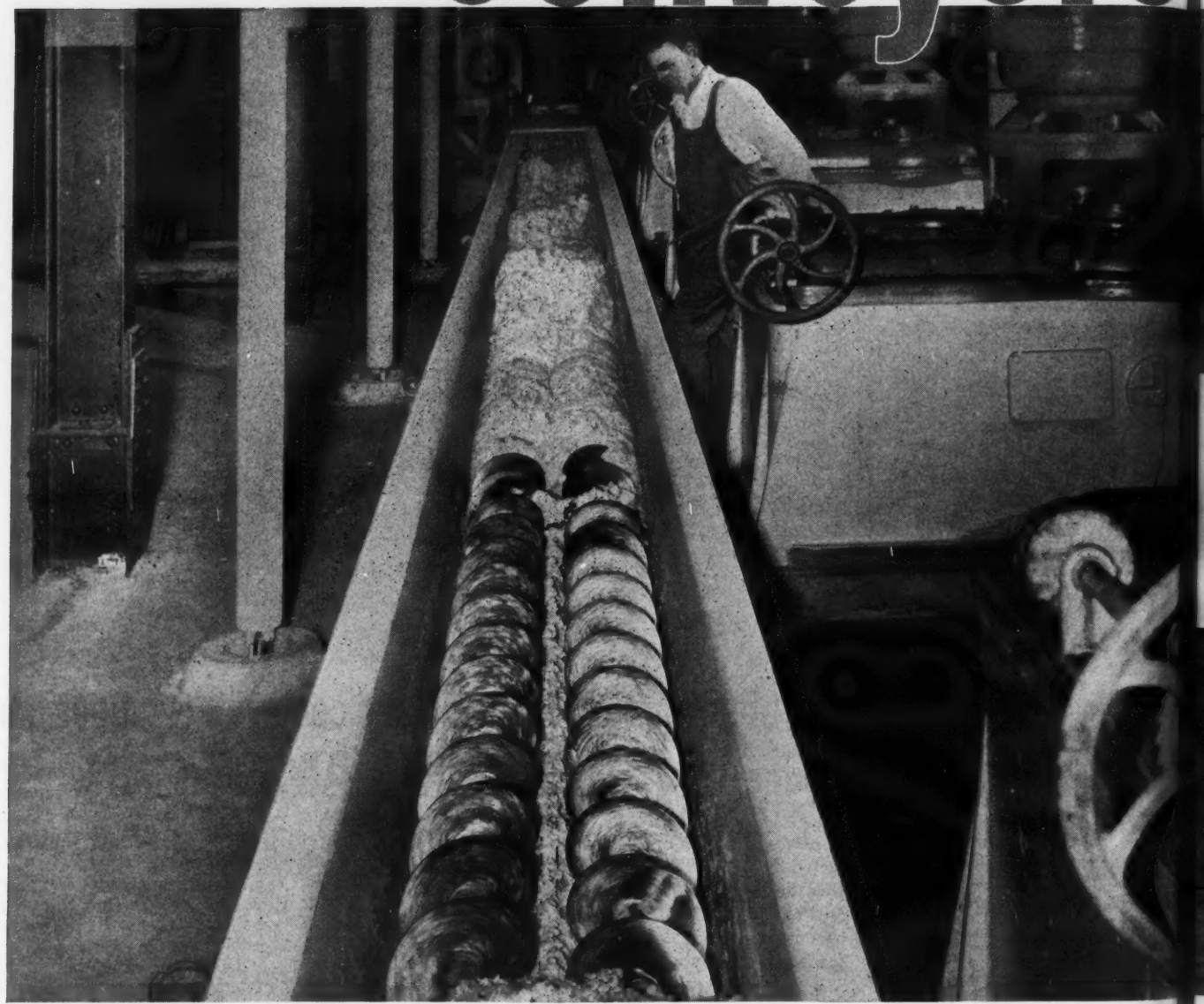
135 South LaSalle Street
Chicago 3, Illinois
Offices in principal cities

PROCESS EQUIPMENT DIVISION GENERAL AMERICAN TRADE MARK

*Patents Pending

7663 on Reader Service Slip.

LINK-BELT conveyors



SCREW CONVEYORS—Easily adapted to congested locations . . . operate horizontally, vertically or inclined. Link-Belt provides all components for a complete screw conveyor line. Exclusive optional *Quik-Link* feature permits fast, easy removal of any conveyor section without disturbing other components.

The last word in value from the first name in conveyors

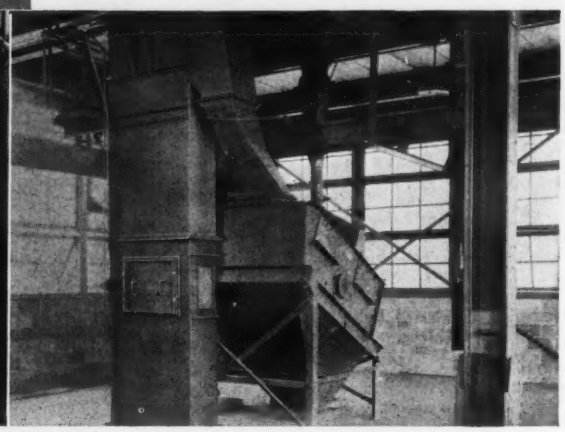
When it comes to your materials handling needs, it is a matter of sound economics to depend on Link-Belt, builders of industry's most complete conveyor line. In addition to this broad range of line, which permits unbiased recommendations, Link-Belt offers *quality*—achieved through engineering skills, manufacturing scope and research . . . *"experience unlimited"* in the materials handling field.

Also important, Link-Belt can provide *complete* handling systems . . . patterned exactly to your requirements with a background of more than 80 years of conveyor specialization. Our engineers are familiar with the particular handling needs of every industry. It's more than likely they have met —and solved—many problems similar to yours. We will design, equip and erect your entire installation . . . and accept full responsibility for its successful operation.

For full information—on single components or complete systems—large or small—contact your nearest Link-Belt office. Catalogs covering all conveyors are available on request.

s unlimited

The line that means savings, whether handling parts or bulk materials, finished products or units

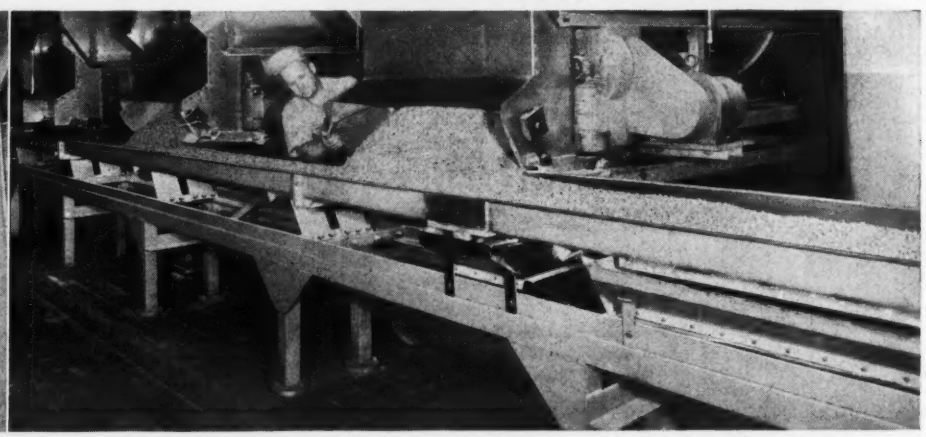


BELT CONVEYORS—Link-Belt serves as a single source for design, equipment and erection of *Job-Engineered* belt conveyors for small or large tonnages, for routes of any length. Link-Belt engineers have the selection advantage of industry's most comprehensive idler line—plus a broad range of pulleys, drives, terminal machinery and auxiliary equipment. Husky, *Pre-Bilt* sectional belt conveyors are also available from Link-Belt.

BUCKET ELEVATORS—Unlimited solutions to vertical or inclined movement of a wide variety of materials —bulk or parts. Fourteen types in four basic designs are fabricated from Link-Belt designed and integrated components—factory aligned for low-cost installation, smooth performance.

BULK-FLO—It's a feeder. It's an elevator. It's a conveyor. All in one unit. Operates horizontally, inclined or vertically. Conveying medium consists of an endless chain with cross flights operating in a close fitting casing. For a wide range of granular, crushed or pulverized materials.

OSCILLATING CONVEYORS—Whether handling fines or granules, chunks, parts or metal chips, Link-Belt's four types of oscillating conveyors—Flexmount, Coilmount, Heavy-duty Coilmount or Torqmount—provide surge-free movement of materials. All types feature *full-time positive action,* yet operate as near to *natural frequency* as possible to minimize power requirements.



LINK-BELT

15,580

CONVEYING AND ELEVATING EQUIPMENT

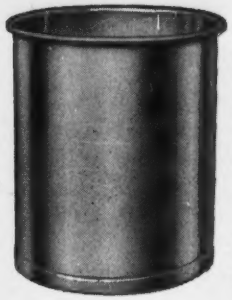
LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses and District Sales Offices in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs; Switzerland, Geneva. Representatives Throughout the World.

Keeping production on the move in every industry

Apron conveyors
Arm and tray elevators
Belt conveyors
Bucket elevators
Bucket elevators-conveyors
Bulk-Flo
Car-type conveyors
Chain conveyors
Circular carrier conveyors
Drag conveyors
Flight conveyors
Flite-Flow conveyors
Oscillating conveyors
Power-and-free conveyors
Pusher chain conveyors
Scraper conveyors
Screw conveyors
Sidekar-Karrier conveyors
Skip hoists
Slat conveyors
Trolley conveyors
Trukveyors

For more information on product at left, circle 7664 see information request blank opposite last page.

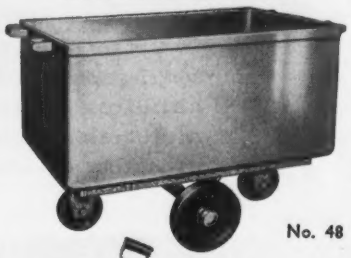
STANcase
STAINLESS STEEL
EQUIPMENT



SANITARY DRUMS
Of 16-gauge Stainless Steel with polished and seamless inner surfaces, rolled top rims, extra heavy-gauge foot rings, bottoms raised from floor. In three sizes of 30-55-60 gallon capacities.

Shown are but a few popular models of STANcase Stainless Steel Equipment designed to meet the varied needs of all Food Handling Plants. Each product, ranging from Scoops and Ladles to Cooking Kettles and Tables, represents the very utmost in Functional Design and Sanitary Efficiency, requiring minimum maintenance with greatest cleansing ease. Rugged heavy-gauge construction or lightweight streamlined design assures economy of LONG LIFE SERVICE & OPERATION EASE.

FOOD HANDLING TRUCKS



No. 48

SCOOPS & MEAT FORKS
All Stainless Steel seamless construction. Lightweight, Sanitary Efficiency designed for heavy duty.

Standard, Tilting, straight-sided or tapered, with or without chimes. 8 to 20 Quart capacities. Finest construction features.

STAINLESS STEEL PAILS

To select products in the Sizes and Capacities you require and to discover New Aids for Food Handling Efficiency, SEND FOR NEW STANcase CATALOG No. 60.

The Standard Casing Company, Inc. 121 Spring St., New York 12, N.Y.

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INCREASE PROFITS!
CUT HANDLING COSTS!

PUT YOUR FROZEN FOOD PROCESSING ON WHEELS

Midwest
ROLL-AWAY TRUCKS

TRUCK SIZE
19¼" x 29" x 55"

. . . roll easily on wide tread 4" composition wheels.

. . . speed movement of packaged meats and other foods from counter or into cold room for storage.

. . . save time, plus labor and food handling expense.

. . . hold 7 large trays or 14 half-size trays, electro-plated to prevent discoloring of packages.

. . . tray sizes: 17" x 28½" x 4", 17" x 28½" x 5" or 17" x 14½" x 3½". Every joint welded . . . no open ends to catch on trucks, doors or other trays.

WRITE FOR CATALOG AND PRICES

MIDWEST METAL STAMPING CO. • Phone 60 • KELLOGG, IOWA

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Contrast between old and new method of storing grain is seen at Rice-Powell elevators, Chicago. In foreground is a 25,000-bushel plastic sausage-shaped bag in which grain is stored. Bag "hugs" grain inside because air has been withdrawn, removing oxygen that could support destructive forces

Reduces cost of grain storage facilities by 25c per bushel

Large plastic bags, which may be placed directly on the ground, hold from 5000 to 50,000 bushels of grain

FIELD TESTS of a new system for storing grain under partial vacuum in plastic sausage-shaped bags are being conducted at the Rice-Powell grain elevators in the Lake Calumet area of Chicago.

System is expected to reduce costs of grain storage facilities to about five cents per bushel as compared to the current building costs of approximately 30 cents per bushel.

Savings can be realized because no structure is needed to house or hold the plastic bags in which the grain is stored. For storage above ground, the only preparation needed is to smooth the earth or even it with a few inches of sand.

Bags can also be stored underground simply by digging a hole large enough to contain them. This would make the stored grain safe from any threat of radioactive fall-out.

The method for storing grain, developed by Dunbar Kapple Division of DK Manufacturing Co., Batavia, Ill, uses a pneumatic grain handling machine, the Vac-U-Vator, which blows the grain into large Koroseal vinyl, sausage-shaped bags. Bags were developed by B. F. Goodrich Industrial Products Co, Akron, Ohio.

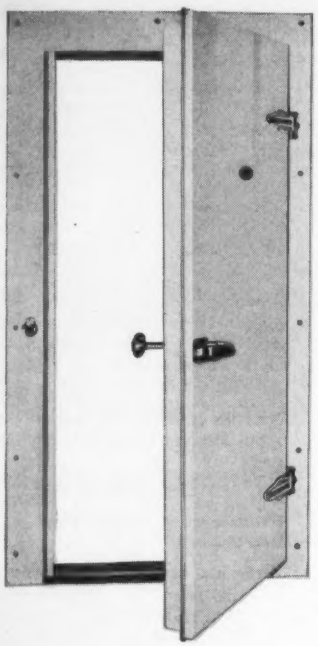
After the plastic sausages are loaded with grain, a partial vacuum is drawn by reversing the air flow. This collapses the bag. By eliminating enough of the oxygen from the grain, the partial vacuum reduces the life fostering elements for insects, molds and other destructive forces.

The 25,000-bushel bag under test at the Rice-Powell ele-

Introducing

VIROQUA
fiberglass
COOLER DOORS

Formerly Walker Doors



MOLDED FIBERGLASS CONSTRUCTION
seals moisture out.

NO RUST OR WARPING
can't corrode or wear.

LIGHT IN WEIGHT
less than one-third other doors.

NO PAINT, NO UPKEEP
cuts maintenance cost.

COMPETITIVELY PRICED
costs no more for the best.

MANY MODELS AND SIZES
cooler, freezer and reach in doors.

Molded fiberglass cooler and freezer doors designed to fit today's refrigeration needs. A truly revolutionary product development. Write today for literature.

SELECT DISTRIBUTOR TERRITORIES OPEN. WRITE FOR COMPLETE INFORMATION

Viroqua Doors
Viroqua, Wisconsin

7667 on Reader Service Slip.

vators is 100 feet in length and circumference and weighs 600 pounds. When it is filled with air at a water pressure of two inches, the added air gives it a weight of 15,000 pounds. This provides the strength to withstand winds of great force.

B. F. Goodrich can supply the plastic, sausage-shaped bags with capacities ranging from 5000 to 50,000 bushels.

Check 7668 on Reader Service Slip for method of storing grain and 7669 for Koroseal vinyl bags.

Refrigerated truck body meets industry standards in maintaining coldness

A lightweight, insulated truck body is available which has passed exhaustive tests to measure cold-holding properties in accordance with industry-recognized standards of performance.

Truck body will permit fleet operators to select the refrigeration unit needed to most economically meet the requirements of the AFDOUS code in states where constant zero degree temperatures are required when transporting frozen food.

Used for testing was a 14-foot long, insulated truck body constructed of laminated panels of lightweight design. Panels consist of a foam plastic core with exterior grade fir plywood interbands and polyester-impregnated glass fiber cloth faces.

Three separate tests were conducted to measure average rate of heat transfer, amount of air leakage and degree of condensation which leaks into truck body and is deposited on walls. The lightweight insulated truck body received unusually good ratings in each of the three areas.

Tests, which were conducted by the Budd Company, an independent laboratory, were sponsored by the USDA and developed by the National Bureau of Standards.

Supplier: Haskelite Division of Evans Products Company, Plymouth, Mich.

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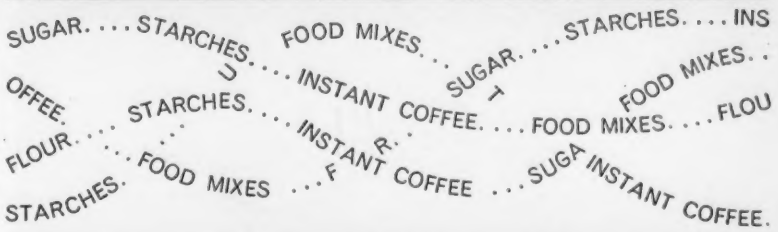
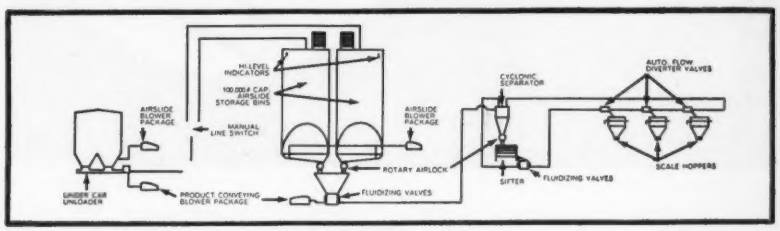


bulk handling with FLO-TRONICS® *fluidization saves as much as 25¢ per hundredweight*

Since their introduction, more and more firms using powdered or granular materials are realizing the tremendous savings ($3.50 to $6.00 per ton) possible with Flo-tronics air conveying systems. These systems not only eliminate the cost of individual containers; they vastly reduce the high cost of hand labor, free precious space and working capital, and provide complete sanitation.

Flo-tronics Fluidization Systems are custom engineered. Costs vary according to a firm's capacity requirements and facilities. Typical savings realized by a baking firm handling bulk flour are illustrated in the following table. (See diagram for installation.)



The following is a cost study for a typical complete fluidizing system as shown above including plant layout, custom engineering, mechanical installation, automatic controls, and electrical installation	*$37,000.00*
Down payment	*7,000.00*
	$30,000.00
36 Month carrying charge	*$ 4,500.00*
Total Finance	*$34,500.00*
Average monthly payment	*$ 958.00*
Product usage	*1500 CWT/per week*
Bulk Savings	*$0.25 per CWT*
Total savings per month	*$ 1,625.00*
Total savings 36 months	*$58,500.00*
Cost of system per month	*$ 958.00*
Cash Saving with system per month	*$ 1,625.00*
Net Saving per month	*$ 667.00*

WILL A FLO-TRONICS FLUIDIZATION SYSTEM SAVE MONEY FOR YOU?

Whether or not such a system would be a profitable capital expenditure depends on such factors as capacity requirements, plant layout, and of course, reduction of costs. A general rule is that a system should pay for itself in 36 months or less. If you wish, Flo-tronics engineers will be glad to make an engineering evaluation of your material handling requirements. For an engineering estimate, write or call Mr. William P. Edmunds, Dept. 202.

FLO-TRONICS INC
1420 zarthan avenue
minneapolis 16, minn

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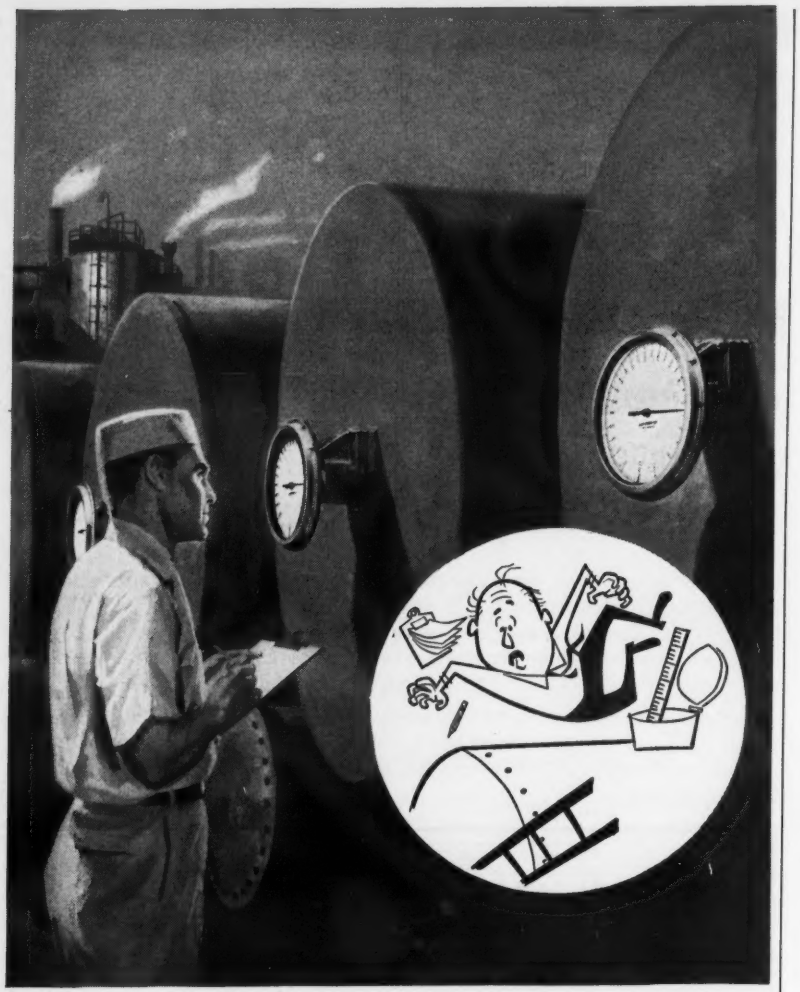

Reading liquid levels got you out on a limb?

Not if an easy-to-read Liquidometer Gauge is used to indicate exact levels at a glance. It's as simple as telling time...ends potentially dangerous dip-sticking.

Liquidometer Gauges enable one man to read liquid levels safely and precisely—keeping a continuous, right-at-hand inventory — without risking life and limb.

Take the hazards out of liquid measurement—save time, too—by installing reliable Liquidometer Gauges. There is a type available for practically every liquid measuring application.

For complete details, write

LIQUIDOMETER INSTRUMENTS

THE LIQUIDOMETER CORP.

Dept. G LONG ISLAND CITY 1, NEW YORK

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technical literature Classified Listing

- **Equipment**
- **Ingredients**
- **Supplies**

Starred* items below have been more extensively reviewed else where in the magazine. Key numbers in the last line will help to locate these reviews, which are numbered in sequence. Items followed by (†) indicate literature offered by advertisers — see Advertisers Index, page 125.

Processing Equipment, Accessories

Discusses applications and performance characteristics of equipment for the process industries*, 12 pp. (Bul G-3D) Fuller Company
7657 on Reader Service Slip.

Lists many applications of carbon dioxide in meat industry*, 20 pp, (Brochure) Cardox Division of Chemetron Corporation
7645 on Reader Service Slip.

New line of heaters are director or indirect fired; use gas, oil or electricity*, (2 Bul: Gas or Oil Fired Heaters, Bul 210-3; Electric Air Heaters, Bul 210-4) Dispatch Oven Company
7647 on Reader Service Slip.

Wide range of vertical-leaf pressure filters*, 8 pp, (Bul 150) T. Shriver & Company, Inc.
7623 on Reader Service Slip.

Packaged boilers provide labor-saving design features†, (Booklet) Cleaver-Brooks Co.
7673 on Reader Service Slip.

Liquid vibrating screens designed for removal of fiberous solids†, (Book 2777) Link-Belt
7674 on Reader Service Slip.

Plates boost efficiency in all kinds of process heating or cooling†, (Bul P-53) Tranter Mfg.
7675 on Reader Service Slip.

Presents information about kettles, tanks, and vacuum pans for food processing†, (Bul) Lee Metal Products
7676 on Reader Service Slip.

Ingredients, Food Additives

Natural fermentation yeast flavor for use in chemically leavened bakery foods*, 8 pp, (Tech Bul No. 400-1) Vico Products
7554 on Reader Service Slip.

A list of catalysts for food processors and other applications. Includes fat hydrogination, steam hydrocarbon reforming, etc.*, 16 pp, (Cat GC 2000A) Chemical Products Division of Chemetron Corp.
7560 on Reader Service Slip.

Technical information on use of refined guar gums in frozen desserts, cheese, dressing, beverages, meat products, pastry and dry mixes*, 8 pp (Bul Series-7) The Burtonite Co.
7561 on Reader Service Slip.

Extremely potent natural source for vitamin C fortification*, 5 pp, (Tech Data on Acerola Concentrate) Nutrilite Products, Inc.
7559 on Reader Service Slip.

Silicone anti-foamers and defoamers for food processes†, (Free sample and manual) Dow Corning
7677 on Reader Service Slip.

Glucono-Delta-Lactone as a chemical leavening for numerous bakery products†, (G-D-L Tech Data) Chas. Pfizer & Co.
7678 on Reader Service Slip.

Price list of chemicals and solvents, 6 pp, BigBen Chemicals and Solvents
7679 on Reader Service Slip.

Packaging, Labeling, Cartoning

Technical data on the printing of polyethylene*, 16 pp, (Bul PDT 13-1259) USI Industrial Chemicals
7577 on Reader Service Slip.

Simple rules for storing and handling cellophane*, 6 pp, American Viscose Corp.
7591 on Reader Service Slip.

Bag closing machine is designed to speed packaging and cut costs†, (Bul No. 100) Union Special Machine
7680 on Reader Service Slip.

Microporous plastic roller codes packages without re-inking†, (Rolacoder) Gottscho
7681 on Reader Service Slip.

Rollaway Horizontal Labeler for overlap or spot labeling onto cylindrical cans or bottles at high speeds, 2 pp, Emhart Manufacturing Co.
7682 on Reader Service Slip.

Spinaway Vertical Labeler for complete wrap-around or spot labeling of jars, bottles or cans at high speeds, 2 pp, Emhart Manufacturing Co.
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Roll-away trucks cut handling costs†, (Cat) Midwest Metal Stamping
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Catalog covering all forms of product conveyors†, (Cat) Link-Belt
7686 on Reader Service Slip.

Describes and illustrates physical characteristics and popular uses for conveyor belting of rubber and Neoprene, white cotton, glazed, wire and rod, 8-page catalog, Burrell Belting Co.
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Non-absorbing plastic belt is tough, durable and practically stretch-free to give longer life, 6-page fold out brochure, R & J Dick Company
7688 on Reader Service Slip.

Pictorial brochure on mobile storage shelves and cabinets, 8 pp, (Bul MS-160) Dolin Metal Products
7689 on Reader Service Slip.

Walking beam conveyor is designed to pick up parts, boxes, crates, or pallets only a fraction of an inch off of fixed supports and carry these a predetermined distance where they are to be deposited, 6 pp, (Illustrated Brochure) Conveyor Corporation
7690 on Reader Service Slip.

Controls spillage and increases capacity of conveyor system 26 per cent without belt construction or steel rolls at steep angles, 2 pp, (Bul) Florida Conveyor & Equipment Company
7691 on Reader Service Slip.

Principles, operation and installations of live-storage flow rack, 8 pp, (Bul 2000) Rapids-Standard
7692 on Reader Service Slip.

Pictorial-demonstration story of advantages of adjustable-pressure wheel-and-belt conveyor, 6 pp, Rapids-Standard Co.
7693 on Reader Service Slip.

Eighteen ways to reduce handling costs in the plant, 4 pp, (Bul 2500) Rapids-Standard Co.
7694 on Reader Service Slip.

Efficient, inter-floor handling with permanent, inclined belt conveyors, 6 pp, (Bul 400) Rapids-Standard Co.
7695 on Reader Service Slip.

Shipping Containers, Palletizing

Four basic combination steel-strapping tools and their four variations, 4 pp, (Bul SPD 251) Signode Steel
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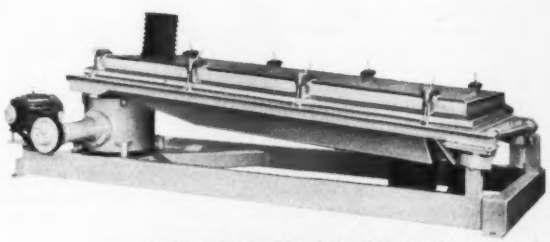

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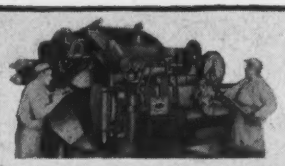

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Twelve models of power combination strapping tools, and typical use situations, 4 pp, (Bul SPD 238) Signode Steel
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How Model 1930 pneumatic stretcher applies steel strapping to small, large or irregular shapes, 1 p, (Bul 710-1930) A. J. Gerrard
7700 on Reader Service Slip.

Guide to selecting and using wirebound boxes in meat industry, 14 pp, Wirebound Box Mfrs. Assn.
7701 on Reader Service Slip.

Powered steelstrappers, stretchers, sealers and typical industry applications, 16 pp, (Cat AD-300) Acme Steel
7702 on Reader Service Slip.

Better ways to package, unitize and ship — using steel strapping, 40 pp, (Cat No. 20) Signode Steel Strapping
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Fork Trucks and Accessories

Specifications and advantages of low-clearance electric lift trucks in 2000-, 3000-, and 4000-lb capacities, 6 pp, (Bul SS—2200) Clark Equipment Company
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Industrial truck battery capacities, dimensions, discharge characteristics, 24 pp, (Bul GB-1567D) Gould-National Batteries
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Details on and advantages of 2500-lb capacity electric fork lift truck, 6 pp, (Bul SS-2215) Clark Equipment Co.
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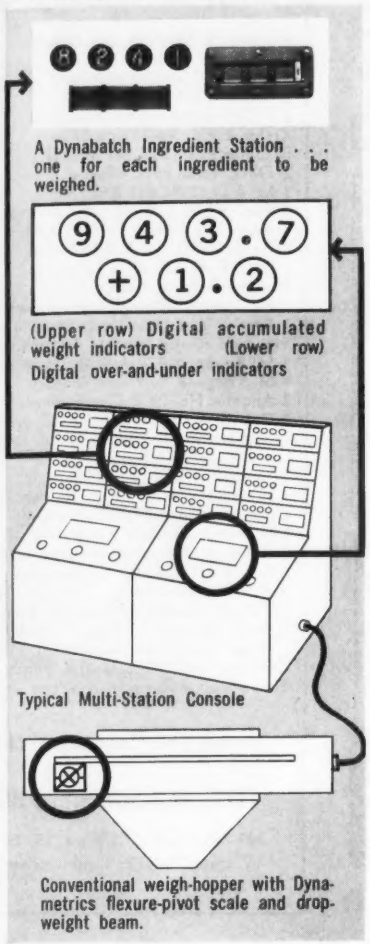
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Versatile photoelectric relay counts up to 600 pieces per min.*, 2 pp, (Lit) Electric Eye Enterprises
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Selection guide for line of thermocouples, 14 pp, (Cat G100-4) Minneapolis-Honeywell Regulator Co., Industrial Div.
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Line of four temperature controllers are transistorized, have thermistor elements*, 8 pp, (Bul MC-190) Fenwal Inc.
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Measures flow rates from 0.004 to 0.0 gpm with high repeatability*, 4 pp, (Bul D-225) Potter Aeronautical Corp.
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Pneumatic controller features simplicity and control stability†, (Data) Bristol Co.
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Recording wet and dry bulb controllers used to regulate process humidity and temperature†, (Cat 500 MP) Taylor Instrument
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Process instrumentation and data on application engineering†, (Data) Foxboro
7716 on Reader Service Slip.

Laboratory Developments

Laboratory apparatus and instrument prices, 16 pp, (Cat No. 60-9-74) Palo Laboratory Supplies
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Sanitation

A resinous grout cement is immune to corrosive effects of food acids†, (Tech Data) Americoat Corp.
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Detergent offers improved wetting and rinsing properties†, (Bul B-7139) Oakite
7719 on Reader Service Slip.

Chlorine sanitizing agents used as algaecides, germicides, fungicides, bactericides, deodorants, disinfectants and bleaches, (HTH and HTH Products Literature Kit) Olin Mathieson Chemical
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Maintenance

Catalog provides specifications needed when ordering wire cloth or screen ranging from 250 mesh to 4-inch square opening*, 24 pp, (Cat 160) Cleveland Wire Cloth
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Piping, Pumps, Valves, Accessories

Details about steam heating coils; shows how to calculate final air temperatures that will be developed under various conditions*, 24 pp, (Cat 1710) Westinghouse Electric Corporation
7602 on Reader Service Slip.

Sanitary pipe clamp is designed to provide removal of assembly in seconds†, (Cat) L. C. Thomsen & Sons
7724 on Reader Service Slip.

Positive displacement pump that automatically measures and transfers†, (Bul P-320) Waukesha Foundry
7725 on Reader Service Slip.

Rotary two-stage compressors designed for compact installation†, (Bul C-5A) Fuller
7726 on Reader Service Slip.

Impulse steam trap is designed to contain strainer and blow-down valve†, (Lit) Yarnall-Waring
7727 on Reader Service Slip.

Advanced design spray nozzles help improve drying or cooling processes†, (Cat 24) Spraying Systems
7728 on Reader Service Slip.

Positive pump with unrestricted inlet demonstrates ability to high capacities without cavitation†, (Bul A-1-525) Creamery Package
7729 on Reader Service Slip.

Why non-contaminating, non-toxic flexible plastic hose is preferred for handling food and beverages†, (Bul T-100) U. S. Stoneware
7730 on Reader Service Slip.

Rubber lined pumps cut cost of pumping corrosive liquids†, (Bul P-6) Ampco Metal
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Tabulate tubing and pipe specifications, 4 pp, (Bul T-456) Babcock & Wilcox
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One valve performs the duty of a shut off valve and a balance valve for water flow regulation, 4 pp, (Bul 204) American Air Filter Co., Inc.
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Miscellaneous

Increases skin's resistance to fungus growth such as athlete's foot†, (Folder) Onox, Inc.
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Lists personnel and phone numbers in key U.S. cities for emergency service on Baker Perkins equipment, 4 pp, (Field Services Bul) Baker Perkins, Inc.
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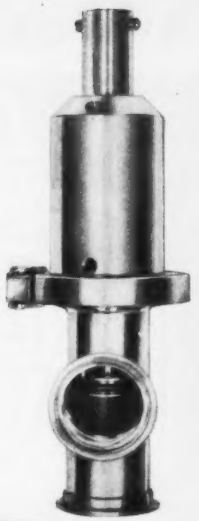

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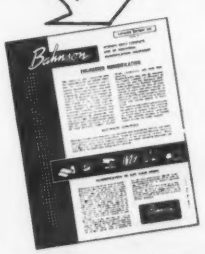

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